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## ABUSE OF MEDICAL CHARITY

It can easily be demonstrated that the presently administered medical charity is demoralizing, both to the recipients as well as donors. Some idea of the alarming growth and extent of this misused practice may be obtained from its detailed examination, which brings out shocking facts and frightening figures and data.

Medicine is one field where people from all over the world, are more than willing to give charity. Charities are often routed through organisations, social welfare committees, NGOs, Government fundings, Zakat or individuals. Medical personnel are often involved. Donors usually choose to give charity through health care professionals known to them. Charity distribution is often community based. NGOs also distribute charities but often the methodologies and priorities are quite mixed up and the end-user, the poor patient does not get its full benefits.

There is yet another group of people, who in the name of donation (charities) collect huge sums of money and build huge building and ultra modern setups to treat The Poor. There is yet another group of Trusts & NGOs etc. who take large pieces of land in very expensive localities, free of cost, in the name of so-called charities from Government and various organisations to build expensive medical business houses, which fail miserably to help the deserving class of patients. Yet there is another group of businessmen and rich people, who to whiten their black wealth open medical charity setups to save income-tax and use it for personal social projection.

There are still a very large number of good, genuine and honest donors who very carefully, without publicity of any kind, give charity for medical treatment of poor patients. Even after careful disbursement, a large proportion of this charity is also diverted from the purpose it is intended and is often practically filched from the poor to whom it rightfully belongs for example Zakat funds and their distributions has failed to serve the purpose for which they are intended.

In conclusion, it can be said that medical charity, as presently administered, is not fulfilling its purpose but creating harmful social practices in most instances. It is supposed to help the poor and needy, but their share is generally robbed by those who can afford to pay. It is,

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therefore, strongly recommended that all medical charitable institutions should be under the direct control of State and local "Boards of Charities". It should also be made punishable for any person to receive free medical charity by false representation of his financial condition. And lastly, state or city or land aid should not be granted to private medical charities under any circumstances.

**ASADULLAH KHAN**

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# PRIMARY CLOSURE OF THE COLON IN TRAUMA: A SAFE PROCEDURE

ANIS SUBHAN, NUSRAT ANIS.

## ABSTRACT:

*The complications associated with colostomy, its closure and the high cost of managing a colostomy in our setting is a critical and ever-present consideration. A single layer interrupted full thickness inverting technique was used for anastomosis. One hundred and sixteen patients were included in the study, 99 were male and 17 female. The cause of injury was penetrating in 111 cases and blunt injury in the remaining five. Right sided colonic injury was present in 76 cases whereas left sided colon was involved in 32 cases. In the remaining eight cases of rectal injury the left colon was also injured. Simple repair, debridement of injured gut and resection anastomosis was carried out depending on the nature and extent of injury. There was no clinical evidence of anastomotic leakage in any case.*

**KEY WORDS:** Trauma, colostomy.

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## INTRODUCTION

Temporary colostomy has been used in dealing with perforation of the colon traditionally since World War II.<sup>1,2</sup> The morbidity associated with colostomy and the surprisingly high rate of complication associated with its closure, has also played a role in giving support to a selection of techniques other than temporary colostomy for dealing with colonic injuries<sup>3,4</sup> Multistage procedures incur increased hospital stay, operating time, medication, days spent away from work and the burden of caring for a colostomy.<sup>5</sup>

This has led to an emerging trend of primary repair in selected cases.<sup>6,7,8</sup> Recently one-stage has been adopted, irrespective of the nature of injury and the extent of peritoneal contamination with encouraging results.<sup>9,10</sup> Because of the cost and morbidity associated with colostomy and its closure, one stage surgery is used routinely for the management of all colonic injuries in our unit since 1989.

## PATIENTS AND METHODS

Between 1989 and 1999 one hundred and seventeen patients with colorectal trauma were seen. One female patient with multi-organ trauma having rectal injury was excluded from the study as she never regained consciousness after the accident. Of the remaining one hundred and sixteen, ninety nine (85.3%) were male and seventeen (14.7%) female. Stab wounds accounted for thirty five (30.2%) and gun-shot wounds for seventy six (65.5%) cases. There were five (4.3%) cases of blunt injury. Right sided colon was injured in 76 (65.5%) cases whereas left sided colon was involved in 32 (27.6%) cases. In the remaining eight (6.9%) cases rectal injury was associated with left colonic injury. In associated organ injury, the most commonly injured organ was small bowel followed by stomach, liver, kidneys, bladder, pancreas and vascular injury. Chest injury was present in 9 (7.8%) cases.

The type of repair varied from simple repair, which was carried out for stab wounds. In gunshot injuries and blunt trauma, primary repair with debridement or resection and anastomosis was carried out depending in the nature and extent of injury. The repair was carried out using a single

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layer interrupted inverting technique. Vertical mattress sutures were employed for repair of the posterior layer and modified Gambee's sutures were used for the anterior layer. In the initial period of the study 2/0 silk was used but later Vicryl 2/0 was employed. In cases of faecal loading, on table lavage was carried out prior to repair.

Nothing was given by mouth for a minimum of 72 hours in cases of simple stab injuries. This duration was extended in case of multiple organ trauma and where resection anastomosis of the bowel was carried out.

## RESULTS

There were no deaths in the cases included in this study. The only patient who died was excluded from the study as no postmortem was carried out to check for evidence of anastomotic leakage. No clinical evidence of anastomotic leakage was discovered in any case. The incidence of superficial wound infection was 17.24% (20 cases). More than eighty percent of the patients had a hospital stay of less than two weeks. The remainder had a slightly prolonged stay of more than one month due to wound infection.

The other complications in decreasing order of frequency were pyrexia, chest infection, postoperative ileus and intra-abdominal abscess. Re-exploration carried out in three cases was not related to anastomotic problems.

## DISCUSSION

The repair of colonic injuries remains a topic for hot discussion among surgeons. The resultant morbidity and mortality associated with these injuries depends on timely and appropriate intervention, in addition to being a test of skill and judgement.

The operative choice in colorectal injuries can be divided in two groups: primary repair or resection and anastomosis and colostomy, protective colostomy or exteriorization.<sup>11</sup> Prior to World War-I the majority of cases of colorectal trauma associated with penetrating abdominal injury were treated non-operatively<sup>11</sup> and in the few cases where surgery was carried out repair of colon wounds consistently failed. Before the outbreak of World War II, the management of colorectal injuries remained inconsistent.<sup>11</sup> Early in the war exteriorization and diversion was advised,<sup>12</sup> later by 1943 colostomy was made mandatory by the United States Surgeon General.<sup>13</sup>

The reason for making colostomy mandatory was the magnitude of injury, the distances involved in evacuating patients making continuity of care impossible and that many of the surgeons did not have experience with war wounds.<sup>14</sup> The trend continued in the postwar period with the return to civilian practice of combat trained surgeons and colostomy remained the gold standard for the management of colorectal injuries. The reduced severity

of injuries encountered in civilian practice prompted surgeons to advocate primary repair or resection in perforating injuries of the colon.<sup>15</sup> In the sixties more and more surgeons started advocating primary repair in selected cases.<sup>16</sup> It was in the seventies that sufficient experience accumulated to suggest that certain colon injuries can be safely managed in such a manner thus avoiding colostomy<sup>(4,8,17)</sup> and the high morbidity rate associated with colostomy closure,<sup>4,18</sup> though this has been disputed by some.<sup>19</sup> Primary repair is now being advocated for all types of colonic injuries.<sup>9,10</sup> The data collected by retrospective studies support the use of primary closure for all types of colonic injuries.<sup>20,21</sup> The presence of risk factors and a higher Penetrating Abdominal Trauma Index (PATI) in primary repair also, did not lead to failure of colonic repair.<sup>22</sup> Prospective randomized controlled studies by a number of authors confirm the advantage of primary closure in all types of colonic injuries, despite any associated risk factors.<sup>23,24</sup>

The burden involved in the management of a multistage procedure is two-fold. The first being the additional morbidity and mortality of colostomy, its management and finally its closure. The cost involved in a multistage procedure borne by the patient and the hospital in the form of operating time is also very important in a developing country like ours. This led us to adopting a one-stage procedure for the management of colonic injuries. Our study confirms that primary repair can be safely used for colonic injuries as clinical leaks are rare, even in patients with risk factors.

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### **III INTERNATIONAL CONFERENCE OF INTERNATIONAL COLLEGE OF SURGEONS-2002 NEPAL SECTION**

The III International Conference of I.C.S. (Nepal Section) will be held at Kathmandu, Nepal from 21st to 23rd March, 2002. This conference is designed to incorporate newer aspects of surgical field of greater clinical interest alongwith scientific sessions to cover research aspects. Distinguished speakers from Nepal and other friendly countries will share their knowledge and experience with the participants.

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# SURGICAL REPAIR OF VESICO VAGINAL FISTULA: A REVIEW OF 70 CASES.

HAQ NAWAZ, SAADAT KHAN, MASHA KHAN, SHEIR AHMED,  
ARIF PERVAIZ, SALLAH UD-DIN, SULTAN MOHAMMED.

## ABSTRACT:

A retrospective study of vesico vaginal fistula repair carried out at Bolan Medical College, Quetta is presented. Seventy patients were diagnosed and operated for vesico vaginal fistula between 1995 and 2001. Vesico vaginal fistula were repaired trans-vesically in 46 cases, trans-vaginally in 11 cases, trans-abdominally in 4 cases and in 11 cases both trans-vaginally and trans-abdominally. Successful repair of vesico vaginal fistula was achieved in majority of the cases by adhering to basic surgical principles.

**KEY WORDS:** Vesico vaginal fistula, Causes, Surgical repair.

## INTRODUCTION

Vesico Vaginal fistula is a severely demoralizing and disabling injury among women who become incontinent as a result of an opening created between vagina and urinary bladder. The incidence of fistulae varies from country to country and continent to continent, as do the main causative factors.<sup>1</sup> The etiology of vesico vaginal fistula has also changed over the years and there has been developments in surgical techniques.<sup>2</sup> Five hundred new cases a year are currently being treated at Addis Ababa fistula hospital.<sup>3</sup> One of the major concerns of gynecologists during gynecological procedures is damage to the urinary tract. Fortunately, this is a rare complication; the incidence being 0.5%- 1% of all pelvic operations.<sup>4</sup> According to the figures obtained from the New Castle survey of 1969-1970, 35 vesico vaginal fistulae are treated each year in England and Wales.<sup>5</sup>

The surgical management of vesico vaginal fistula is still controversial and the factors under discussion are the timing of repair (early versus late), surgical approach (trans vaginal versus trans vesical), excision of the fistula (excision versus no excision) and use of local tissue flaps. Hamlin<sup>3</sup> who has the largest vesico vaginal fistula experience in the world (7000 cases) recommends that trainees should be encouraged to do the easier repairs at their local hospital and refer only problem cases.

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## PATIENTS AND METHODS

Medical records of 70 patients, who underwent vesico vaginal fistula repair, between July 1995 and July 2001 at the Department of Urology, Bolan Medical College Hospital, Quetta were reviewed. Investigations of each patient comprised complete physical examination with laboratory, excretory urography and cystoscopic examination. Bilateral retrograde pyelography was done in few cases suspected of ureteric injury. In few cases dye test, by using indigo- carmine was used. The type of treatment either vaginal or vesical approach, was decided on examination under anesthesia (EUA).

## RESULTS

Retrospective review of 70 consecutive women, who presented with a vesico vaginal fistula, repaired between 1995 and 2001 revealed that the majority of the fistulae occurred in young multiparous women living in rural areas. Twentyone (30%) cases were in age group of 21-25 years (Table I).

**TABLE-I AGE DISTRIBUTION OF PATIENTS IN THE STUDY N=70**

Age Group (years)	No.
12-15	4 (5.71%)
16-20	12 (17.14%)
21-25	21 (30.0%)
26-30	12 (17.14%)
31-35	9 (12.85%)
36-40	7 (10.0%)
> 40	5 (7.14%)

According to the causes they were divided in three groups (Table II). In group A (obstetric causes) there were 46 (67%) cases. The vast majority of these were due to prolonged labour (33 cases, 47.14% of all fistulae), eleven cases 15.71% of all fistulae were due to lower segment cesarean section (Table II).

Causes	No.
<b>A, Obstetric</b>	
Pressure Necrosis	29 (41.42%)
Caesarean Section	11 (15.71%)
Forceps delivery	6 (8.57%)
Caesarean Hysterectomy	2 (2.86%)
<b>B, Surgical</b>	
Abdominal Hysterectomy	10 (14.28%)
Vaginal Hysterectomy	4 (5.71%)
Colporrhaphy	1 (1.42%)
<b>C, Miscellaneous.</b>	
Radiation for cervical Carcinoma	3 (4.28%)
Foreign body	2 (2.85%)
Neglected Pessary	1 (1.42%)
Inflammatory (Tuberculosis)	1 (1.42%)

The fistulae were divided according to the anatomical site into five groups, Table III. Majority 41 (58.57%) were suburethral and 10 (14.28%) were at the mid vagina. Anatomical classification of fistulae is given in Table III.

Site	No	%
Sub urethral	41	(58.57%)
Mid vagina	10	(14.28%)
Juxta cervical	9	(12.85%)
Urethral	4	(5.71%)
Uretero vaginal	6	(8.57%)

Seventy-eight reconstructive operations were performed in 70 patients. Cure rate was obtained in 90% patients after a first closure procedure. Eight patients within a month experienced recurrence. These eight recurrences were successfully closed in second operation, augmenting the success rate to 100% in this group of patients. The surgical procedures used is given in Table IV.

Operation Performed	No.	Post op. Leakage	Successful repair
Trans vesical	46	3(6.52%)	93.5%
Vaginal repair	11	2(20%)	80.00%
Both Trans vesical & Vaginal approach	9	3(33.3%)	67.7%
Trans abdominal	4	0(0%)	100.00%

**DISCUSSION**

Vesico vaginal fistula is still an unpleasant and severely demoralizing injury among women, mainly due to disabling childbirth injury or complication of genital system injury resulting in incontinence.<sup>6,7</sup> According to Sims the cause is a matter of serious importance to both surgeon and patient that susceptible complications be reduced.<sup>8</sup> Considering the causes, we classified the patients into three groups. Firstly, in the obstetric causes the majority 29 (41.41%) were due to pressure necrosis due to obstructed labor. These birth injuries remain the major cause of urinary fistula in under developed countries with limited medical services.<sup>9,10</sup> The vesico vaginal fistula of birth injury is due to sustained compression of the anterior pelvic structures by the fetal head and subsequent necrosis.<sup>11,12</sup> The other obstetric causes of vesico vaginal fistula in our study were forceps delivery and cesarean hysterectomy. Secondly, the surgical causes were only upto 20% as compared to the developed countries where hysterectomy contributes about 75% of the genito urinary fistulae.<sup>13,14,15</sup> Thirdly, a general miscellaneous group which encompasses causes like radiation for cervical carcinoma, foreign bodies and inflammatory disease, constituting upto 9% of cases.

It is difficult to compare different series since factors which vary are range of severity of the lesion, the general condition of the patient, the number of previous attempts at repair, the preoperative, theatre and postoperative facilities and the experience and expertise of the surgeon. According to our study and those of the others<sup>4,15,16</sup> the management of vesicle vaginal fistula remains controversial in regard to the timing and the type of approach. The early repair of uncomplicated vesico vaginal fistula after gynecological surgery offers reliable success.<sup>16</sup> This shortens the length of hospital stay for the patients and alleviate much of morbidity endured and the prospects of successful repair decline with each operation of between 65% and 95%.<sup>17</sup> In failure of previous fistula repair a usual interval of between 3 to 6 weeks should pass to permit adequate lymphatic drainage to return to the tissue and the infection, swelling and edema of surgery to subside.<sup>18</sup> For decades the argument has raged as to the relative merits have vaginal or vesical repair. To a large extent this is as much an argument between gynecologist with extensive experience of vaginal surgery and less trans vesical surgery and urologists with a predominantly or exclusively vesical approach.<sup>19</sup>

We agree with the view of Diaz et al,<sup>20</sup> that the vesico vaginal fistula repair can be done via the vaginal, vesical or combined approach. We do not believe that one technique is superior to the other. The optimum approach is that works best in the surgeon's hands. The route of approach is also best tailored to the individual patient.<sup>21,22</sup> In our study 46(93.5%) cases fistula were repaired trans vesically and 11 cases were repaired trans vaginally. The

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# PATTERN OF RENAL DISEASES IN CHILDREN

AFROZE RAMZAN, KHEM CHAND N. MOORANI.

## ABSTRACT:

*A retrospective study of 2015 children aged, 1 month to 15 years with renal problems during a ten years period (1989-1999) was carried out at National Institute of Child Health Karachi to see the pattern of renal diseases. Boys were 1420 (70.48%) and 595 (29.52%) girls, with a male to female ratio 2.3:1. Children having nephrotic syndrome were 863 (42.82%) while 350 (17.36%) had congenital renal diseases, 282 (13.99%) urinary calculi and 209 (10.37%) were suffering from chronic renal failure (CRF).*

*Urinary tract Infection (UTI) was seen in 146 children (7.24%), acute glomerulonephritis (AGN) in 58 (2.87%) and acute renal failure (ARF) in 28 (1.38%). Seventy nine (3.92%) children were suffering from miscellaneous problems.*

*Though this may not be true reflection of national pattern of renal disease, yet it gives useful information. Nephrotic syndrome is the most common renal disease followed by congenital renal diseases Urinary calculi, CRF, UTI, AGN and ARF are other important renal diseases in this country.*

**KEY WORDS:** *Renal diseases, renal failure, children.*

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## INTRODUCTION

Pediatric nephrology is a relatively new subspecialty of pediatrics in Pakistan. Many children with renal problems are dealt with by adult nephrologists and general pediatricians. Some information is however available regarding the pattern of renal disease and renal problems in children accounts for 3.5% of all admissions and out patients' visits.<sup>1,2</sup>

National Institute of Child Health (NICH) is a tertiary care 250 bed hospital receiving patients mainly from Karachi and interior of Sindh and occasionally from Baluchistan and Punjab. NICH has busy outpatient and inpatient departments, both for medical and surgical pediatric patients.

Renal diseases in children, such as nephrotic syndrome, UTI and glomerulonephritis are well known in general pediatric practice. But the magnitude of these problems has not been emphasized in the past. A similar study was

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carried out by us in 1990.<sup>1</sup> The present study about the pattern of renal diseases has been carried out in order to see the occurrence of various renal disorders in children so that future strategies can be planned for better care.

## PATIENTS AND METHODS

This retrospective study was carried out in Pediatric Medical Unit I of NICH which also deals with pediatric nephrology, besides general pediatric problems. A pediatric nephrology clinic was established in 1989 where children were registered and record was maintained. A record of 2015 children aged 1 month to 15 years, registered for renal diseases, during a 10 year period from October, 89 to October, 99 was reviewed.

Children diagnosed as having renal diseases, whether congenital or acquired were included in this study. However, associated problems like UTI in patients with primary diagnosis of VUR or renal stone were not taken separately. Surgical cases attending medical OPD were also included.

This figure of 2015 is the actual number of patients and not the followup visits by these children, because children

with renal problems need thorough workup and long term followup in most cases. There are multiple followup visits for each patient. All patients admitted in Unit-I either through OPD or from emergency department were included in the study after they were discharged from the ward and attended the follow up clinics in OPD.

**RESULTS**

Among the 2015 children with renal problems, 1420 (70.4%) were boys and 595 (29.52%) girls. Their ages ranged from 1 month to 15 years and majority of them (58.5%) were below 5 years (Table-I).

Disease	< 1Yr	1-5Yrs	5-15Yrs	Total
Nephrotic Syndrome	--	547	316	863
Congenital Renal Diseases	110	132	108	350
Urinary Calculi	06	150	126	282
CRF	24	50	135	209
UTI	19	62	65	146
AGN	--	10	48	58
ARF	08	14	06	28
Miscellaneous	09	40	30	79
Total	176 (8.5%)	1005 (50%)	834 (41.5%)	2015 (100%)

The distribution of major renal diseases reveals that nephrotic syndrome and congenital renal diseases were two most common diseases seen in 860 and 350 children respectively. Various types of congenital renal disease are in Table II which shows that vesico ureteral reflux (VUR) and posterior urethral valve (PUV) are the two most common structural anomalies (30% and 24%).

Disease	Patients
Vesicoureteral Reflux (VUR)	106 (30.28%)
Posterior Urethral Valve (PUV)	83 (23.71%)
PUJO/VUJO*	44 (12.57%)
Congenital Nephropathies	44 (12.57%)
Neurogenic Bladder	19 (5.42%)
Duplex System	17 (4.85%)
Miscellaneous*	37 (10.57%)

Etiology of CRF is shown in Table III.

Disease	Patients
Urinary Calculi	46 (22%)
Reflux Nephropathy	35 (16.74%)
Obstructive Uropathy	33 (15.78%)
Congenital Nephropathies	21 (10.04%)
Chronic Glomerulonephritis	05 (2.39%)
Neurogenic Bladder	04 (1.91%)
Miscellaneous	65 (31.10%)

Acute renal failure was seen in 28 patients. Urinary calculi was the most common (21.42%) cause of ARF, followed by hemolytic uremic syndrome (HUS). Acute gastroenteritis was seen in only three cases. Majority of patients with ARF were basically suffering from acute on CRF where infection had precipitated ARF (Table V).

Disease	Patients
Urinary Calculi	06 (21.42%)
HUS	05 (17.85%)
Sepsis	04 (14.52%)
Gastroenteritis	03 (10.71%)
Acute On CRF	10 (35.71%)

**DISCUSSION**

In this study nephrotic syndrome is the most common renal disorder (42.8%) and is similar to our previous reported study in which 53% of children had nephrotic syndrome.<sup>1</sup> Though prevalence of nephrotic syndrome from northern Pakistan is less as compared to our present study but still it is reported as the most common renal disorder.<sup>2</sup> High prevalence of nephrotic syndrome has also been reported from India<sup>3</sup> and in Indo-Pakistan population of children residing in United Kingdom.<sup>4,5</sup>

The congenital renal diseases constitute the second most common group of disorder (17.36%) in this study. This is 4 times higher than the previous one where overall congenital anomalies were 4.4%.<sup>1</sup> This may be due to increased awareness among the paediatricians and establishment of paediatric nephrology services at the institute. Such a high prevalence of congenital renal disorders have not been reported earlier from Pakistan. This may be because of less number of patients in both previous studies.<sup>1,2</sup>

Vesicoureteral reflux (VUR) and posterior urethral valves (PUV) are the two most common structural anomalies in this study. Both of these lesions are responsible for about 60% of congenital causes of CRF. VUR is well known for the recurrent acute pyelonephritic damage resulting in chronic renal failure and renal scarring which may manifest as hypertension during adolescence or pregnancy.

Congenital obstructive malformations have been reported as the commonest primary pathology leading to CRF and account for 23% cases, according to North American Pediatric Renal Transplant Co-operative Study (NAPRTCS) 1998 Annual Report.<sup>6</sup> Overall congenital anomalies were responsible in about one third of causes of CRF in Saudi Arabia.<sup>7</sup> In this study, 42.5% of congenital anomalies were associated with CRF. This high prevalence of CRF in association with congenital renal disease may reflect poor antenatal care and late referral for special care. Overall increased congenital anomalies can also be explained on high prevalence of consanguinity in the society.

Other less common but important congenital malformations in this study were pelviureteric and vesicoureteric junction obstruction, congenital nephropathies including hypoplasia, dysplasia and cystic renal diseases. Some cases of juvenile nephronophthisis presenting with chronic renal failure were also present.

Although urolithiasis is a urological problem managed mainly in surgical or urological units, but it has emerged as third most common problem (14%) in this study. This has confirmed our previous data of 18% and is comparable to study by Javaid Iqbal et al<sup>2</sup> where urolithiasis had been 13.1%. This is consistent with an overall high prevalence of urolithiasis in Pakistan, "a stone belt country". Such a high prevalence has been shown in many studies<sup>8,9,10</sup> where Sindh has been shown having highest prevalence of stone disease in the world<sup>10</sup>. In a recent report from Karachi, paediatric urolithiasis was found in 13% cases, which though consistent with our results<sup>11</sup> is much higher than the West.<sup>12</sup> In northern India, urolithiasis constitutes fourth most common renal disease,<sup>13</sup> which is also consistent with our result.

Most of urinary calculi (73.75%) were located in upper urinary tract causing hydronephrosis, while remaining (26.25%) were situated in bladder as endemic stones. Urinary calculi are responsible for 22% of causes of CRF in this study which is consistent with our recent study of 46 children with urinary calculi in which 21.7% of children had CRF.<sup>14</sup> A high renal morbidity associated with calculus diseases has been reported in adults where 67.2% of patients admitted with CRF and 32% presented with calculus anuria. In a total of 360 patients with urinary calculi associated with renal failure, pediatric to adult patient ratio was 1:6.<sup>5,15</sup> The high prevalence of urolithiasis may be due to multiple factors including high environmental temperature with inadequate intake of water, particularly in rural areas, increased consumption of cereal based diet, recurrent diarrhoea in malnourished children and congenital obstructive malformation in infected stones. There may be a role of genetics, particularly when stones are seen in families.<sup>16</sup>

In this study CRF was the fourth common renal disease (10%) indicating rising trend as compared to our previous figure of 3%. However, this is comparable with a local study where it was 11.6%.<sup>2</sup> These figures are consistent with prevalence of CRF in Saudi Arabia where it accounts for 15% of renal admissions.<sup>17</sup>

This increased prevalence of CRF in our study may reflect the record keeping and establishment of a separate nephrology clinic at National Institute of Child Health, Karachi. Previously most of children with CRF were looked

after by adult nephrologists. Renal calculi were found as the most common cause of CRF (22%) in this study, followed by reflux nephropathy (16.74%) and obstructive uropathy (15.78%). Other important causes were congenital nephropathies, chronic glomerulonephritis and neurogenic bladder. Renal calculi as cause of CRF has not shown by others in Asian countries like India and Bangladesh. However it has confirmed the data of a single centre from Karachi, where calculi were responsible for 8% of renal failure in adults.<sup>11</sup> This again reflects inadequate health care system, where delay in diagnosis and treatment failure has led to chronic renal failure.

Urinary tract infection (UTI), a common and important diagnosis was found to be much less in this study (7.24%). This may be due to following reasons.

- Complicated UTI or UTI associated with other renal diseases like stone, obstructive uropathy, VUR, neurogenic bladder were not taken separately.
- Repeated episodes of acute UTI in subsequent followup period were not taken separately.
- Post operative UTI treated in surgical units were not included.

Acute glomerulonephritis (AGN), has been common in the past, particularly in developing countries, following B-hemolytic streptococcal infections<sup>18</sup>. This has not emerged as one of the common renal disorder (2.8%) in our present study, which may be due to overall decrease in the streptococcal infection because of wide spread use of antibiotics. Similar trend has also been observed in India.<sup>19</sup>

Acute renal failure is a serious condition with high morbidity and mortality (30-50%) requiring hospitalization, close observation and early intervention in the form of acute peritoneal or haemodialysis. Our data (1.4%) is comparable to a prevalence of 1.5-2% of pediatric admissions in India.<sup>18</sup> Overall incidence of ARF has significantly decreased, particularly ARF caused by severe hypovolemia following acute gastroenteritis, which was common before 1980s.<sup>17</sup> This may be due to widespread use of oral rehydration therapy and better case management of diarrhoea. However, gastroenteritis is still responsible for 10.7% of all cases in this study. This is quite consistent with the Indian study where it had accounted for 18% of ARF.<sup>19</sup> In our study urinary calculi are the more common cause, followed by HUS (17.85%) and sepsis. Renal stones has been shown as cause of calculus anuria in adults and in pediatric patients as well.<sup>15,20</sup> Hemolytic uremic syndrome (HUS) secondary to shigella dysentery was common cause of ARF in children till 1990s but has significantly decreased over the last 5 years in India and Bangladesh. However, unlike our study it is still the most common cause of ARF and accounts for about one third of cases.<sup>17,19</sup>

It is interesting to note that more than one third of patients with ARF were basically acute on CRF. They remained undiagnosed and presented first time with ARF due to precipitation by either dehydration or infection.

To conclude, nephrotic syndrome is the most common renal disorder followed by congenital renal diseases. Urinary calculus disease, chronic renal failure, UTI, AGN and ARF are the other important renal diseases, which may be responsible for high morbidity and mortality. Early diagnosis and proper management of renal calculi, early treatment and long term prophylaxis against UTI in VUR and early surgical management of obstructive nephropathies can reduce morbidity and mortality related to renal diseases. Further studies on larger scale in this field are needed to document the magnitude of renal problems.

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# CLINICAL PRESENTATION AND DIAGNOSIS OF MALIGNANT LYMPHOMA

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## ABSTRACT:

*This is a descriptive study of 44 consecutive cases of malignant lymphoma at P.O.F. Hospital Wah Cantt. from July 99 to July 2001. The patients included in this study were aged 09 to 80 years. The purpose of this study was to evaluate the clinical presentation in each case. Thirty-six patients (81.81%) presented in O.P.D with lymph nodes enlargement. The disease mainly involved cervical group. Six patients (13.63%) admitted as cases of P.U.O. Rare presentations included Mycosis fungoides, abdominal mass and mediastinal lymphadenopathy. Depending upon lymphadenopathy, surgical procedures were performed for diagnostic purpose. Twelve patients were diagnosed as Hodgkin's disease (27.27%), while 32 cases (72.72%) as non-Hodgkins lymphoma. Liver (9.09%) and splenic (20.45%) involvement are found to be quite high. Lymphocytosis found in 13.6% cases.*

**KEY WORDS:** *Malignant lymphoma, Hodgkins Disease*

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## INTRODUCTION

Malignant lymphomas (ML) are a group of malignant diseases of the lymphoid system usually starting in the lymph nodes or in lymphoid tissues of other organs such as lungs, spleen and skin. As a group they are the most studied of all human neoplasms and some lymphomas are the most curable of all human cancers.<sup>1</sup>

ML are divided into two main types: Hodgkin's disease (HD) accounts for 25% while Non Hodgkin's lymphoma (NHL) are approximately 75% of all lymphomas.<sup>1,7</sup>

HD has a long and rich history. The disease was named after Thomas Hodgkin (1798-1866) an English scholar and quaker physician working at Guy's Hospital London. Lymphatic disease was first described in 1666 by Malpighi although it was in Hodgkin's 1832 paper on some morbid appearance of the absorbent glands and spleen, that cases of HD were well documented. Hodgkins name was attached to the disease in 1865 in a paper by Wilks.<sup>8</sup>

The pathogenesis of HD is unknown although the Epstein Barr Virus has been implicated. The pathological hallmark of HD is the Reed Sternberg cell. There is still debate about its exact origin, although it is felt to be the malignant cell.<sup>1,5,7</sup>

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In western countries incidence of NHL is increasing 11 per 100000 persons. In younger age group this is related to NHL, occurring secondary to HIV infection. The main objective of the present study was to evaluate the pattern of clinical presentation of ML along with diagnostic surgical procedures carried out at P.O.F Hospital Wah Cantt.

## PATIENTS AND METHODS

ML are one of the most common cancers presented and diagnosed in surgical department. A two year descriptive study of 44 patients of ML was carried out from July 1999 to July 2001. The patients were evaluated on their history, clinical examination and necessary investigations after admission in surgical ward. Blood complete picture, urine R.E., x-ray chest were done in all patients. While ultrasound abdomen was done in 07 patients, total of 37 patients were diagnosed by excision biopsy of involved lymph nodes, while laparotomy for complete pathological staging done in selected case (n=7). All specimens were submitted for histopathology. Ultrasound abdomen and chest were carried out in all patients.

## RESULTS

There were 29 males (65.9%) and 15 females (34 %) with male to female ratio of 1.9:1. High incidence of disease was found in patients above the age of 40 years (24 patients 54.54%) with mean age of presentation 37.15 years.

Thirtysix patients presented in out patient department while 8 patients (18.18%) were admitted in surgical ward from emergency due to presenting symptoms of P.U.O and mass right iliac fossa (Table I).

CLINICAL FEATURES (N=44)		
Mode of presentation	Symptoms	No. of patients
Emergency ( 8 cases )	P.U.O	6 (13.63 %)
	Mass R.I.F	1 (2.27 %)
	Intestinal obstruction	1 (2.27 %)
	Mass back of chest	1 (2.27 %)
O.P.D ( 36 cases )	Mycosis fungoides	2 (4.54 %)
	Cervical lymphadenopathy	9 ( 20.45 %)
	Generalized lymphadenopathy	24 ( 54.54 %)

The shorter duration symptoms was of 7 days of pain in R.I.F associated with mass formation while the longest duration was 5 years for cervical lymphnode (solitary) enlargement. On examination liver was found enlarged in 4 and spleen in 9 patients .

Blood complete picture carried out in all patients.

Total lyncocyte count (TLC) was normal in 42 patients while one patient had TLC of  $1.2 \times 10^9$  and one patient with T.L.C of  $21 \times 10^3$ . DLC showed increased lymphocytes in 6 patients. The maximum lymphocytes were upto 82 % of total DLC. 38 patients (86.36 %) had normal DLC.

X-Ray findings are given in Table II.

FINDINGS OF X-RAY CHEST	
Findings of x-ray chest	No. of patients
Pleural effusion	5 (11.36 %)
Opacity in Lung	5 (11.36 %)
Mediastinal lymphnode enlargement	9 (20.45 %)
Normal X-Ray	25 (56.8 %)

## DISCUSSION

Out of 44 patients 12 patients were diagnosed as HD (27.27%) while 32 (72.72%) as NHL. Nodular scleriosis remains the highest type in HD and diffuse large cell in NHL. Besides breast cancer ML are the second most common cancers diagnosed in surgical ward.

Males are more frequently affected than females in a ratio of 1.9:1, comparable with literature.<sup>1</sup> The youngest patient in this study was nine year old with cervical nodes enlargement (HD). In pediatric age group ML represent 40% of malignancies in head and neck region.<sup>2,4</sup>

Most lymphomas arise in lymph nodes but they also develop in all organs. ML generally appears as a painless, discrete and

rubbery lymph nodes. The onset is insidious with fluctuation in size. Cervical lymph nodes are often the first to be involved. The anatomic site of involvement often provide a clue to the type of lymphoma present. HD virtually always arise with in lymph nodes and affects extra nodal tissue secondarily. NHL generally presents in peripheral or abdominal lymph nodes. Some forms of NHL present as generalized widespread disease whereas other present as an extra nodal tumor mass in soft tissue or in non-lymphoid organ.<sup>1,4,5</sup> In our study ML presented as an emergency with P.U.O (13.63%) and R.I.F Mass (diagnosed as appendicular mass, later found to be NHL of G.I.T associated with right leg edema.) One male patient aged 62 years who presented in emergency with intestinal obstruction, was treated conservatively. Ultrasound abdomen showed para aortic lymph nodes enlargement. Diagnostic laparotomy revealed HD. Six patients of P.U.O were diagnosed as HD. One patient with mass back of chest and 01 case of mycosis fungoides were found to be NHL. Among cases of generalized and cervical lymphadenopathy, 05 were diagnosed as HD and 29 as NHL.

Physical examination often reveals more widespread node involvement than noticed by the patient. Unexplained lymphadenopathy which fails to resolve spontaneously within a few weeks should always be a suspect. Lymphomatous nodes may wax and wane in size and the shrinkage of node does not exclude a diagnosis of lymphoma.<sup>6,7</sup>

It is stated that in literature that liver is involved by HD in about 5% cases and usually only in association with splenic involvement.<sup>1,3</sup> The spleen is involved in about 40% cases and is the most frequent abdominal site affected by HD. Splenic involvement occurs most frequently in nodular scleriosis and mixed cellularity types. It is observed in our study that figures for liver and spleen involvement are quite high with liver involvement in HD 16.6% and NHL 6.25%. Splenic involvement is 58.33% in HD while 6.25% in NHL. Several tumor nodules are usually visible.

Massive involvement with confluent tumor nodules is about 5% of cases. The presence of more than 04 splenic tumor nodules has been shown to affect survival adversely, because of the increased frequency of lower abdominal nodal involvement.

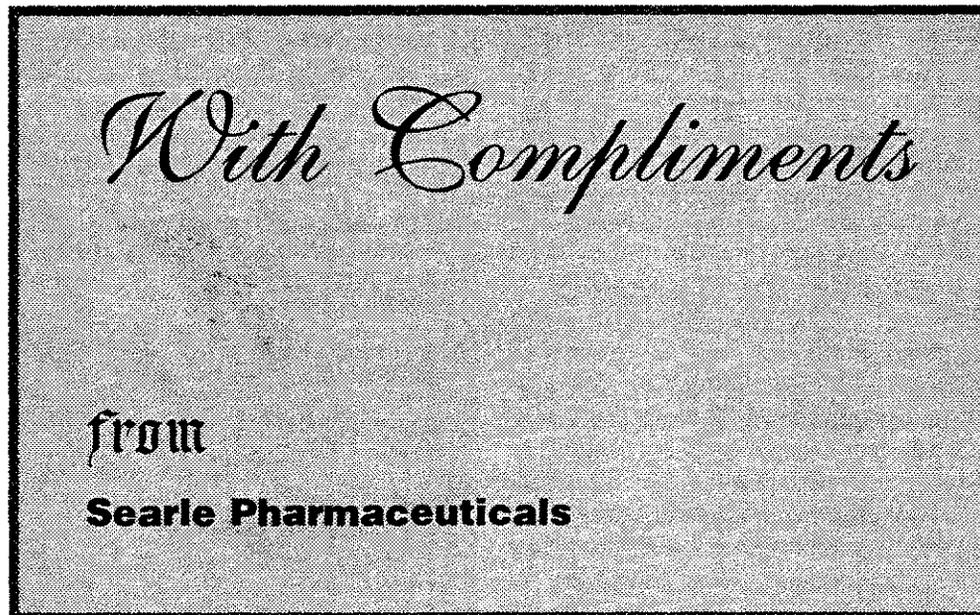
The clinical stage differs from the pathologic stage in that the former determines the extent of the lymphoma by non-surgical means, physical examination, laboratory tests and radiologics imaging, among others. Complete pathologic staging includes a staging laparotomy in which splenectomy and biopsies of liver and retroperitoneal iliac, mesenteric or paraaortic lymph nodes are done. Pathologist prefers the node to be removed without disturbing the capsule. If a good specimen is obtained, special procedures can be performed and the

classification of HD or lymphoma can be established.<sup>1</sup> Incision biopsy from mass at back of chest and of lesion of mycosis fungoides under local anesthesia done. One case of P.U.O. has no positive finding except of mediastinal lymph node enlargement. Biopsy under ultrasound guidance done, shows HD. In one study lymphoblastic lymphoma occurred in adolescent with mediastinal involvement as a primary site of disease 60%.<sup>4,5</sup> Laparotomy for diagnostic purpose is carried out in 13.63% cases.

Lymphoma cells may circulate in the peripheral blood and involve the marrow and other organs to some extent in every type of NHL. Generally lymphomas of low grade (small lymphoblastic, small cleaved cells) are associated with lymphocytosis and marrow involvement more often than those of higher grade (diffuse mixed cellularity, diffuse large cell, small non cleaved, lymphoblastic lymphoma) except for LB lymphomas.<sup>6</sup> In low grade lymphoma lymphocytosis indicates disseminated disease but does not have due prognostic implications, whereas in lymphomas of high grade it is indicative of widespread clinically aggressive disease.

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# PERCUTANEOUS TENOTOMIES FOR TALIPES EQUINOVARUS

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## ABSTRACT:

A two-year prospective study was conducted at the National Institute of Child Health, Karachi, from January 1999 to December 2000. Multiple percutaneous tenotomies were done in neonates with various degrees of talipes equinovarus (TEV). The aims were to correct feet with mild to moderate deformities and to render the feet with rigid TEV more pliable with ample skin for corrective surgery at a later date. The results were good in 80 feet with moderate deformity and satisfactory in 12 cases that had moderately rigid feet. There were unsatisfactory results in 20 cases that had severely rigid feet.

**KEY WORDS:** TEV, tenotomies, percutaneous.

## INTRODUCTION

It is observed that serial POP castings in the children with TEV, specially those with moderate to severe degree of deformity, rendered feet more rigid, less amenable to surgery, with less skin at the operative site at later date.

A protocol consisting of percutaneous tenotomies of tendoachilles, tibialis posterior along with Stienler's slide was devised with following aims.

- To achieve correction in mild and moderate deformities,
- To have a less rigid foot with severe/rigid deformity for corrective surgery at later date.
- To have adequate skin at the definitive surgery.

## PATIENTS AND METHODS

The study included 82 children (122 feet) up to 3 months of age (54 male, 28 female) presenting for the first time in the out-patient department.

TEV with associated conditions as multiple congenital contractures, myelomeningocele and cerebral palsy were excluded.

The surgery was carried out on day care basis under general anaesthesia with tourniquet. The first step was

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percutaneous tendoachilles lengthening (Fig-1). Only the central tendon is divided, where fleshy part of the muscle is ending and the tendinous portion is starting. The foot is dorsiflexed till the giving way feeling felt. The next step is feeling the tibialis posterior just above and behind the navicular tuberosity and dividing it percutaneously, this corrects the inversion if done properly. The third step is percutaneous division of the medial head of the plantar fascia/aponeurosis just as it arises from the calcaneum to correct the high arch (Fig-2).



**Figure 1:** Incision for percutaneous release of Achilles tendon.

A single suture at each position closes the skin incision. Above knee plaster of Paris cast is applied for two weeks.



**Figure 2:** Incision for percutaneous release of tibialis posterior and plantar fascia.

The cast is changed fortnightly for 3 months when "night shoes" is given to be worn 24 hrs a day till the child starts to bear weight, then "pre-walking shoes" given, till the child starts to walk.

### RESULTS

Out of 82 cases, the bilateral club feet (40 cases) were more than the unilateral and among the unilateral, right foot (28 cases) was more involved than the left (14 cases). The type of deformity was classified into moderate 62 cases (49 feet) and severe 20 cases (28 feet) (Fig-3). The results were categorized as good in 50 cases (80 feet) and unsatisfactory in 12 cases (14 feet). The results were good when the foot was wholly planted on the ground with heel and no inversion. The results were satisfactory when there was a mild degree of forefoot adduction and the heel was well planted on the ground (Fig-4 & Fig-5). In the unsatisfactory results the heel was not fully planted on the ground with forefoot adduction or there was severe inversion of the foot. All the unsatisfactory feet required formal postero-medial release at a later date. All 20 severe cases required surgery at a later date.



**Figure 3:** Bilateral TEV with moderate deformity.



**Figure 4:** Results of bilateral TEV after correction. Anterior view.



**Figure 5:** Results of bilateral TEV after correction. Posterior view.

### DISCUSSION

The percutaneous tenotomy was undertaken because the value of POP cast in the neonatal period is controversial. The casting prevents further deterioration of the feet as the child grows but on the other hand by acting as a rigid, unyielding cast it prevents foot growth, renders the joint more rigid with less skin. Furthermore, the forced positioning of the foot causes damage to the tarsal cartilages and break in the mid tarsal joint resulting into rocker-bottom foot.<sup>1</sup> Moreover, when corrective surgery is undertaken it is observed that most of the feet with moderate and severe deformities were nonpliable after serial castings. Secondly, there was shortage of skin on the medial side, which either resulted in the necrosis of the suture line or resulted in residual inversion of the foot leading to re-operation. Even redo did not achieve satisfactory results.<sup>2</sup>

The earliest treatment was initiated by Hippocrates (460-377 BC) who advised manipulation and bandaging. In 1575 Ambroise Pare` advocated the same treatment. Later Nicholas Andry in 1743 added wet dressings to

soften the ligaments to manipulations and bandaging, and wooden or iron boots were designed by Jean Andre Venel as early as 1741-1791.<sup>3</sup>

First tenotomy of the tendoachilles was carried out by Lorenz in 1784 and later on adopted by Sartorius, Michael's and Delpech in the early 18th century. The largest series was published by Dieffenbach in 1841 and he reported 350 cases in whom tenotomy was performed. Later on with the advent of general anaesthesia in 1846, more extensive surgery for the treatment of club foot started and Solly in 1856 performed first osteotomy for club foot.<sup>3</sup>

In 1990 Bensahel H. published a series of extensive physiotherapy for correction of moderate and severe club foot and published a series of 338 cases who underwent extensive physiotherapy with 68% good results claimed, rest had to be operated.<sup>4</sup> Main in 1978 promoted early surgery for good results but says further experience is required in this respect.<sup>5,6,7</sup>

Percutaneous tenotomy was found only in very old journals. In 1995 Cooper published a review of 45 adult patients who had undergone surgery in childhood. His treatment consisted of gentle manipulation and cast in neonatal period with weekly change of cast preceded by manipulations. He advocated percutaneous sectioning of tendoachilles if the equinus deformity persists after eight or nine casts. In the recent journals it has been done in TEV associated with other neurological abnormalities.<sup>8</sup>

We decided to undertake this study with a view to making the foot more pliable with some growth of skin on the medial aspect when the corrective surgery is undertaken at a later date. The procedure adopted was percutaneous release of the Achilles tendon, tibialis posterior and Stiedler's slide in the neonatal period and cast was

applied. In our opinion this should save the foot from all the problems mentioned earlier as fixed joints, less skin, rocker-bottom foot. We got good results in feet with moderate deformity and some of the severely deformed feet. Even in the severely deformed feet which had 'bad' results we managed to achieve a pliable feet with ample skin for the corrective surgery at a later date.

To conclude, in children with moderate variety, good functional results were obtained in 81% cases. In severe variety this procedure prevented further fixation of joints and rendered the foot in more neutral position. The limited procedure adopted is therefore recommended as a helpful adjunct in moderate and rigid variety of clubfoot.

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# SPECTRUM OF MECHANICAL INTESTINAL OBSTRUCTION IN ADULTS

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## ABSTRACT:

*In order to ascertain the pattern (and causes) of intestinal obstruction, this study was conducted at Surgical Unit II, Bahawal Victoria Hospital, Bahawalpur from February 2000 to July 2001.*

*Eighty-five adult patients presented with the intestinal obstruction. Eight patients were excluded because of the relief of obstruction with conservative management. In 77 patients who underwent exploration, majority of them were male with mean age 37.8 years (range 14-73 years). The most common cause of intestinal obstruction was the presence of adhesions. The most frequent operative procedure undertaken was the formation of stoma (ileostomy/colostomy). Post-operative complications were noted in 31% of the cases, the most common being wound sepsis. Overall 7 deaths were recorded.*

**KEY WORDS:** *Intestinal Obstruction, Tuberculosis, Adhesions, Stoma formation.*

## INTRODUCTION

Intestinal obstruction is a common cause of emergency surgical operations. It can occur at any age and accounts for approximately 5% of all acute surgical admissions.<sup>1</sup> It carries a favourable prognosis if recognised and treated promptly.<sup>2</sup> Patients presenting with intestinal obstruction are often extremely ill and require prompt assessment and resuscitation, with intensive monitoring. High morbidity and mortality may result when patients present late, go undiagnosed or are resuscitated inadequately before surgery.<sup>2</sup> Global as well as regional variations in the pattern of intestinal obstruction and changes in the disease pattern over the years are well-documented.<sup>3,4</sup> Variations in the disease pattern from time to time suffice the changing pattern and presentations. The morbidity and mortality can be lessened by the early diagnosis and prompt surgical interventions.<sup>5</sup> The classic description of intestinal obstruction is to divide into mechanical and functional types. Mechanical obstruction, with certain exceptions, relies on conservative management.<sup>2</sup> This study was conducted to ascertain the pattern (and causes) of intestinal obstruction.

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## PATIENTS AND METHODS

Seventy-seven patients, who presented with signs and symptoms of intestinal obstruction were admitted in Surgical Unit II of Bahawal Victoria Hospital Bahawalpur from February 2000 to July 2001. After being subjected to detailed clinical assessment and investigations, prompt fluid and electrolytes balance was undertaken before exploration. Patients who improved on conservative treatment were excluded. Clinical assessment supported by radiological studies were used to confirm the diagnosis of intestinal obstruction before surgery was undertaken. Accuracy of pre-operative diagnosis was assessed during exploration. All the cases were operated within 12-24 hours of admission. The operative details were noted with special reference to the site of obstruction and operative procedure undertaken. Outcome of every case was noted with special note of duration of hospital stay, post-operative complications and mortality.

## RESULTS

Eighty-five adult patients presented with the intestinal obstruction. Eight patients were excluded because of the relief of obstruction with conservative management. In 77 patients, who underwent exploration, majority were male

with male to female ratio of 1.14:1.00. The mean age of the patients was 37.8 years (range 14-73 years) (Table I).

Age (years)	Sex		%
	Male	Female	
13-20	4	3	7
21-30	7	13	20
31-40	9	8	17
41-50	11	3	14
51-60	3	4	7
61-70	3	2	5
>71	4	3	7
<b>Total</b>	<b>41</b>	<b>36</b>	<b>77</b>

The clinical presentations of all the patients are shown in Table II.

Presentation	No.	%
Abdominal Distension	70	91
Absolute Constipation	69	90
Vomiting	64	83
Abdominal Pain	59	77
Abdominal Tenderness	31	40
Haematemesis	13	17
Bleeding per rectum	12	16
Shock	11	14
Weight Loss	7	9
Fever	7	9

The most common cause of intestinal obstruction was the presence of intestinal tuberculosis in various forms (38%). The second most common cause was the presence of adhesions (Table III).

Aetiology	No.	%
Intestinal T.B.	13	17
Ileocaecal T.B. (Mass)	9	12
Tuberculous Ileal Stricture	7	9
Adhesions	14	18
Bands	5	6
External Hernias	7	9
Sigmoid Volvulus	3	4
Caecal Volvulus	3	4
Intussusception	3	4
Ca Stomach	4	5
Ca Colon	4	5
Ileocaecal Ca	3	4
Ca Sigmoid	2	3

The most frequent operative procedure undertaken was the formation of stoma (ileostomy/colostomy), i.e. 33% (Table IV).

Operative Procedure	No.	%
Colostomy	15	19
Ileostomy	11	14
Achesiolysis	19	25
Resection & Anastomosis of Ileum/Colon	11	14
Hartmann's Procedure	7	9
Stricture plasty	6	8
Gastrojejunostomy	4	5
Hemicolectomy	4	5

Post-operative complications were noted in 31% of the cases, the most common being was wound sepsis (Table V). Overall seven deaths were recorded.

Complication	No.	%
Wound Sepsis	11	14
Anastomosis Leak	6	8
Residual Intra abdominal Abscess	5	6
Chest Infection	4	5
Non-functioning stoma (within 36-48 hours)	1	1

## DISCUSSION

The diagnosis of intestinal obstruction is based on the classic quartet of pain, distension, vomiting and absolute constipation.<sup>6</sup> The sequence and duration of these vary according to the site and degree of obstruction. The pattern of mechanical obstruction in adults shows diversity in the observations in some other studies carried out in Pakistan.<sup>5,7,8</sup> (Table VI).

Study Carried out	Total Cases	Intestinal T.B. %	Adhesions %	Hernias %	Volvulus %
Memon <sup>7</sup> A	103	--	14	41	4
Hashnain <sup>8</sup>	208	10	34	16	3
Malik <sup>5</sup>	295	15	19	32	--
Ahmed <sup>9</sup>	66	4	19	18	--
Atiq <sup>6</sup>	286	19	29	28	6
Manzoor <sup>11</sup>	120	21	16	28	22
Present Study	77	38	18	9	8

The most common cause in our circumstances was the presence of intestinal tuberculosis (38%) which is quite high as compared to other studies. The obvious reasons are the non-compliance of patients to anti-tuberculous therapy, poor socio-economic conditions, emergence of

resistance to existing anti-tuberculous drugs and most importantly, illiteracy. The adhesions/bands were evident in about a quarter of the patients. This observation varies from the studies carried out in Western countries, where 50-55% of the cases are due to adhesions.<sup>2,9,10</sup>

When the intestine is obstructed, the progress of the disease, unless obstruction is relieved, is inevitably fatal due to strangulation and gangrene which represents a worse-case scenario. The cause of obstruction varies in different geographical areas due to local factors which determine the spectrum of the disease. In our study, the volvulus of colon was only in 8% of cases (Table VI), whereas in a study carried out by Manzoor et al in Baluchistan, a fairly under-developed area, about 22% of the cases developed intestinal obstruction due to volvulus. Similarly in our study, Afghan refugees were mostly affected.<sup>11,12</sup>

Intestinal obstruction is common in Pakistan and other tropical countries, but majority of cases present late. This leads to delay in its management and hence increases complications. Despite advances in prophylaxis, drug therapy and better diagnostic facilities, tuberculosis still remains a major health problem. Even in the developed countries, the incidence is again rising. Adhesions/bands were the second common cause in our study (about 18%). Malignancy was encountered in only 8% of the cases, however in Malaysia malignancy was found to be a common cause of intestinal obstruction.<sup>13</sup>

Stoma formation (ileostomy/colostomy) was the commonest surgical operation carried out in the present study (33%). The second common operation was adhesiolysis (25%). Post-operative wound sepsis, which occurred in 14% of the patients, resulted in prolonged hospital stay. In 6 cases, anastomosis leak was detected (3 ileo-coloc, 2 colo-colic, 1 ileo-ileal). These were repaired subsequently and resulted in stoma formation. Post-operative chest infection was seen in 4 cases, 3 of them recovered, whereas one could not withstand the severe sepsis and expired. Patients who developed residual abscesses (6%) were managed conservatively.

High morbidity and mortality may result when patients present late, go undiagnosed or resuscitated inadequately before surgery. Overall 7 deaths were recorded, 5 of them were pre-operative and only 2 occurred post-operatively (1 due to severe chest infection and 1 due to anastomosis leak).

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# ANASTOMOTIC LEAKAGE - A STUDY OF AETIOLOGICAL FACTORS

JAVED NAEEM QURESHI, ZAHID ALI QURESHI, PARKASH AHUGA, ABDUL SATTAR MEMON

## ABSTRACT:

*Anastomotic dehiscence presents a significant surgical problem. In a five-year study 50 patients with anastomotic dehiscence, were evaluated. Male to female ratio was 1.5:1. Anastomotic dehiscence appeared predominantly following emergency surgical intervention in 41 patients (82%). History of anaemia, sepsis and malnutrition were present in 98%. A majority (95%) of anastomotic dehiscence occurred within 10-15 days. If a proper surgical technique is used with selection of good quality suture and sepsis, anaemia and malnutrition are prevented, the incidence of anastomosis could be greatly reduced.*

**KEY WORDS:** *Anastomosis dehiscence; Suture material; Surgical technique*

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## INTRODUCTION

Intestinal anastomosis healing passes through the same phases of healing as elsewhere in the body.<sup>1</sup> Dehiscence of a surgical anastomosis continues to be one of the many challenges faced by the surgeon. It remains one of the most frequent causes of morbidity in emergency surgical resections occurring after 3-6% of all anastomosis. The mortality is 20-22% in cases with leakage compared with 7% where the anastomosis is intact or when it is treated earlier than 25 hours after injury.<sup>1,2</sup> It often leads to a second operation resulting in greater mortality than the original operation. Anastomosis leak causes great distress to the patients and is perceived as a failure of treatment, with greater embarrassment to surgeons.

This study was undertaken with a view to investigate and analyse various factors leading to development of anastomosis breakdown, specifically the experience of surgeons, suture material, and surgical technique.

## PATIENTS AND METHODS

A prospective study was conducted on 50 patients with anastomotic leakage between January 1996 and December 2000, who underwent gastrointestinal repair. The purpose of the study was to look into factors leading to anastomotic leakage.

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All patients were evaluated with the help of proformas containing variables for preoperative, operative and postoperative assessment. At the time of admission information obtained and recorded included age and sex, clinical features, date of operation, operation performed, place of operation (emergency or elective setting), type of suture material, surgical technique, preoperative sepsis, general condition of patient, the time interval between initial operation and appearance of leakage and known or suspected risk factors for fistula.

Preoperative preparations included all routine and relevant specific investigations, gut preparation and drugs for prophylaxis. Correction of dehydration and anaemia were carried out. Postoperatively all the patients were kept nil orally till the return of bowel sound when nasogastric tube and catheter were removed and oral intake allowed.

Wound dressing was removed usually at 7th day or earlier when it became wet. Postoperative complications were recorded. Anastomotic leak, constituents, time interval after surgery, high or low fistula, local condition and pathology of the gut were also recorded. Investigations for anastomotic leak were limited to barium contrast studies where the uncertainty prevailed.

## RESULTS

A total number of 50 patients were included in this study. There were 27 males and 23 females. Age ranged between 18 and 70 years, majority (52%) of patients were between the ages of 31 and 50 years; 60% of these patients were underweight by 20-30 percentile according to standard ideal weight. The presenting clinical factors are listed in Table I.

Clinical Presentation	No. of Patients with leakage	Percentage
Gut perforation	30	60%
a) Typhoid	20	40%
b) TB	7	14%
c) Trauma	3	6%
Strangulation with gangrene of gut	10	20%
Gut malignancies	10	20%
a) Colon	4	8%
b) Stomach	3	6%
c) Oesophagus	3	6%

Majority of dehiscence occurred following laparotomy for gut perforation, where there was established primary sepsis with peritonitis. According to site, oesophageal cancer resection anastomosis had the highest incidence of anastomotic leak (37.7%) followed by ileocolonic anastomosis for malignancy/TB (30%) in emergency admissions. Table II.

Site	Total No. of operations	No. of patients with leak	Percentage
Oesophagus	8	3	37.7%
Small bowel	120	33	27.3%
Large bowel	70	17	24.2%
Stomach	15	3	2%

In small bowel resection anastomosis, typhoid perforation with peritonitis had the increased incidence of postoperative leak (25%). All laparotomies with resection anastomosis in the study followed midline incision 31% of patients were found to be underweight and 20% had haemoglobin levels less than 10-g/dL.

Emergency operations were 70% of total and 95% of these were performed by registrars, 5% by consultants. The ratio was reverse when elective operations were performed i.e. 85% by consultants and 15% by registrars. Operations were conducted under general anaesthesia and 94% cases were induced by trainee anaesthetics. A preoperative bowel decompression was carried out by N/G tube and antibiotic were mandatory.

In absorbable suture monofilament catgut 60% and polyglactin 40% were used for continuous through all coats anastomosis. Silk was used for seromuscular second layer. All anastomosis were hand sutured. Discrepancy of lumen was up to 3% in all the anastomosis, while figure was 100% in ileocolic repair. End to end anastomosis was done in ileoileal, ileocolonic sites. End to side was done at oesophago-jejunal site and side to side was performed with stomach and jejunum. Suspicion of safety was covered by colostomy 3%, ileostomy 15% with 5% incidence of leak (ileum and colic ratio 2:1).

Postoperatively all patients under study developed fever, 20% within 24 hours, 30% in 48-72 hours and 50% on 7th postoperative day.

Patients managed by steam inhalation and physiotherapy for their chest problems were 20% (atelectasis 40%, infection 30%). Patient's wound dressing was seen on daily basis and 70% was changed on 5th - 10th postoperative day and 30% on 10th - 15th day.

Second operation was carried out in 70% cases with persistent leakage (exteriorization). A further leak noticed in 30% at proximal to diversion drainage. The mortality was 12% in emergency and 2% in elective setting. This went up to 40% in 2nd operation.

## DISCUSSION

Surgical anastomotic leakage presents a major surgical problem. Surgical literature contains numerous analysis of this common clinical entity and many factors have been incriminated in the leakage. The nature and purpose of this work was to assess the decisive factors in anastomotic leakage at two settings of emergency and elective operations.

Among preoperative factors old age, malnutrition, uraemia, malignancy, typhoid and TB were the main cause of leakage in our study. Shock, sepsis, hypotension, poor bowel preparation, postoperative leak was up to 30% with mortality 20%, which is compatible with available literature. Lowering of systolic BP by more than 50-mmHg below the base line for 15 minutes, or longer during operation results in visceral vasoconstriction leading to ischaemia locally, causing 50% increase in rate of leakage.<sup>1,2</sup>

Progress in development of suture material results in lower rate of fistula.<sup>3</sup> It is necessary to apply prophylaxis to avoid leakage of anastomosis.<sup>1</sup> There was no difference between style and layer hand suturing in high oesophagus and low rectal anastomosis.<sup>4,5</sup> A single continuous monofilamentous absorbable suture anastomosis was performed safely and quickly which was

compatible with the literature.<sup>6</sup> Postoperative leakage 3%, stenosis 10%, mean hospital stay 10 days, were also in accordance with the literature available.

Although anastomosis depends on many factors mentioned, a good technique is probably the most important.<sup>7</sup> The suture technique may also help explain the variability in wound healing.<sup>3</sup> The Connell suture with loop was compared with simple through and through all layers using chromic catgut and vicryl stitch and found to be equally effective amongst experienced hands with no added advantage. The Connell stitch was though time consuming but gave best result in experienced hands. Polyglactin was long lasting and incidence of anastomotic leakage was delayed by 5 to 6 days (mean 3 days) when compared with chromic catgut. It was also evident from this study that absorbable suture polyglactin gave better results than chromic catgut in achieving good anastomosis. The incidence of leakage with polyglactin catgut suture was also low with trainee registrars. Ratio was 1.5:1 in favour of polyglactin because of its tensile strength, tissue absorbability and tissue reactivity.<sup>3</sup> However there was no difference between these two sutures when anastomosis was carried out in clean operation and at elective settings.

Anastomotic leakage following gastric anastomosis was less than 2% while leakage from small bowel was up to 27.3%. Our figure of leakage up to 27% in emergency was slightly higher than the literature which accounts incidence of 20.5%. It was 7.9% in the absence of infection in contrast to 8.5% in our study.<sup>2</sup> Almost all cases of bowel perforation (98%) presented in emergency later than 24-hours, that is why there has been an increased incidence of morbidity and mortality.<sup>2</sup>

The ideal treatment for typhoid perforation was found to be ileostomy in our setting. The resection anastomosis was carried out in selected patients who presented earlier than 24-hours before surgery or their general and local condition of gut was optimal for primary repair. The failure of anastomosis was less than 6%.

Left colonic perforations were not treated by resection anastomosis. Hemicolectomies with ileocaecal tuberculosis 14%, carcinoma colon 8% and trauma 6% were managed with primary repair and found to be effective in elective operations. The incidence of leakage was up to 24.2% in emergency right hemicolectomies was attributed to feculent or purulent peritonitis and poor prophylaxis and disparity of lumen with poor local condition of the gut. Present study also shows that poor access to low rectal

and high in oesophagus, anaesthesia with poor muscle relaxation, caused an increased tension in repair 20% and found to be important factors in causation of leakage. Preoperative and postoperative antibiotics, parenteral and oral nutrition were helpful in achieving good repair. In our study cephalosporin with metronidazole were found to be as effective as ampicillin, metronidazole and gentamycin combination.

From this study it is quite evident that in patients who came late (after 24-48 hours) when there had been an established sepsis with poor general and local condition of gut, there was no difference between simple continuous or connel suture. There was also no benefit with selection of suture in these very poor risk patients, since leakage incidence remained the same (>20%).

It is recommended that any anastomosis can be difficult and risky if exposure and access of the anatomy is poor. Malnutrition, inadequate mobilization, anaesthesia with poor muscle relaxation, hypotension, poor prophylaxis and sepsis were the main causes of failure. Choice of suture and technique are all important for outcome of good repair. Anaemia, jaundice, malignancy, diabetes, TB, typhoid and uremia, all contributed to complications including anastomotic leakage, stricture and long hospital stay.

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# CAUSES OF MAXILLO FACIAL INJURIES - A THREE YEARS STUDY

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## ABSTRACT:

To determine the causes of maxillofacial injuries, a three years study was carried out at the Department of Dentistry, Jinnah Postgraduate Medical Centre Karachi from January 1994 to December 1996. All patients with maxillofacial injuries were included in this study, except isolated nasal fractures. Out of a total 175 RTA cases, 45 cases were motor cycle riders and eleven pillion passengers. One hundred three cases were involved in automobile accidents, 41 cases sustained injured in front seat, 33 were rear seat passengers and 29 pedestrians. It was observed that the most common cause of maxillofacial injuries was road traffic accidents (59.30%).

**KEY WORDS:** Maxillofacial injuries, trauma, road traffic accidents.

## INTRODUCTION

Maxillofacial injuries are not uncommon in Pakistan. Maxillofacial trauma is an important dental and surgical condition for which optimal management requires almost continual review of factual information and acknowledgement of the more recent advances in the evaluation and treatment of patients. This study was conducted to determine the causes related to maxillofacial trauma and find out risk factors related to maxillofacial trauma, propose methods to minimize such risks and investigate the role of traffic rules in the causation of maxillofacial trauma after analysis of the collected data. Few statistical studies are available concerning pattern and trends in maxillo-facial trauma. The social and economic conditions in Pakistan are different from those in the West and epidemiologic data on maxillofacial injuries pertaining to this region is lacking. Maxillofacial injuries are extremely common which may be simple and limited to the soft tissue or they may be complex involving the underlying skeleton. The highest incidence of fractures of maxillofacial skeleton was found to be in the second and third decades of life and lowest in the seventh decade.

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Facial injuries are more common in males. Studies carried out in India show that there is a low incidence of maxillofacial injuries in females, the male to female ratio being 5:2. The low incidence in females of India may be attributed to their moving out of their homes infrequently. Road traffic accidents were the most common cause (38.40%). In study by Abiose about 80.77% of maxillofacial injuries were due to road traffic accidents. In developing countries, due to high quality roads, modern vehicles, enforcement of traffic laws and seat-belt introduction, the percentage has decreased to 22.2%.

## PATIENTS AND METHODS

The study was carried out at the Department of Dentistry, Jinnah Postgraduate Medical Centre, Karachi over a 3 year period from January 1994 to December 1996. All patients presenting with maxillofacial injuries were considered eligible for the study. Isolated nasal fractures were excluded because these are routinely referred to the E.N.T. Department. Patients who came to the department were referred from the casualty, other wards of the hospital, or from general practitioners. A questionnaire was used to gather data on all patients. A proforma was made in which patient's demographics, causes of maxillofacial injuries and time of accident was recorded. Total number of cases were 295, out of which 245 were male and 50 females. The patients' in this study were two to 70 years old.

## RESULTS

The highest incidence of maxillofacial fractures was in the age group 21 to 30 years (38.30%), followed by the 31 to 40 years (21.35%). The lowest incidence was observed in the 50 years or above age group (2.3%). In the present study, the ratio between male to female was 5.56:1. Over a 3 years period it was seen that maxillofacial trauma is increasing per year; in 1994 the number of cases were 73 (24.74%), 97 (32.88%) in 1995 and in 1996 the number rose to 125 (42.38%). The most common cause of maxillofacial injuries in this study was road traffic accidents, majority of which occurred at 10:00 hours and again at 13:00 hours, 14:00 hours, 16:00, 17:00 hours, 19:00 and 20:00 hours. It was seen that in rush hours more accidents occurred because of school time, official work time etc. Over a period of 36 months, the majority of maxillofacial trauma occurred in the months of June and August (12.9%) and less cases were reported in month of December (5.8%). In this study road traffic accidents accounted for the largest number of maxillofacial injuries (59.32%); from a total of 175 cases, 148 males and 27 females were recorded. Motorcycle riders or pillion passengers were 56 cases (32%). Among motor vehicles, 41 cases (23.42%) who sustained maxillofacial injuries were in front seat, 33 (18.85%) were rear seat passengers and 29 (16.57%) pedestrians. Accidental falls occurred in 63 cases (21.35%) followed by assault in 34 cases (11.52%), sports injuries 9 cases (30.5%), industrial accidents and miscellaneous category 7 cases each. Among the assault victims the causative factors were injuries by fist, kick, blunt weapon and firearms<sup>1</sup> (as in wars).

## DISCUSSION

The incidence of violent crime is increasing; studies in the last two decades have shown that assaults are now the commonest cause of maxillo-facial injuries in many developed countries, accounting for 38% injuries. This may be due to the underlying social conditions like unemployment, alcohol, racially motivated violence, robbery and sports hooliganism. Sport related trauma accounted for 3 to 18% of maxillofacial injuries. These injuries were due to high contact sports like rugby, soccer, boxing and ice hockey.

Maxillo-facial injuries vary from soft tissue lacerations to major fractures of maxillofacial skeleton. The mandible being the most prominent bone in face is often fractured more than the strongly supported middle third of face.<sup>3</sup> Mandibular fractures are classified as condyle, angle, body, symphysis and dentoalveolar. The mandibular fractures account for 35.5% to 45.5% of panfacial trauma. In road accidents and assaults, parasymphyseal and angle of mandible fractures are most common. The most common sports injuries are due to collision, falls or a direct blow on chin, as in boxing. The most common sports related mandibular fracture are condylar and

subcondylar.<sup>4</sup> Nasal bones show least resistance, and majority of them are a part of midface fracture. The mid face is best classified according to the line of fracture passing through midface skeleton. The zygomatic bone is intimately associated with maxilla and frontal bone.<sup>5</sup> As they are usually involved together with zygomatic fractures, it is more accurate to refer to such injuries as zygomatic complex fractures. The zygomatic bone is usually fractured in the line of zygomatic frontal, zygomatic temporal and zygomatic maxillary sutures. Fracture of the zygomatic complex occurs as isolated or in association with Lefort III midface fracture. The fracture of the zygomatic bone alone is unusual. The zygomatic arch may be fractured without much displacement.<sup>5</sup>

The incidence of these injuries varies with age, sex and region, a period of time, climatic conditions, socio-economic<sup>6</sup> differences, traffic volume, road traffic accidents<sup>7</sup> and preventive measures taken in different countries.<sup>8,9</sup> A careful examination of injuries combined with an intimate knowledge of surgical anatomy, supported with radiological findings, enables the clinician to reach an accurate diagnosis and plan. The definitive treatment depends on the type of fractures. Simple methods of reduction and immobilization are employed for most common fracture of the mandible<sup>3,10</sup> while circumzygomatic wiring and transosseous wiring are employed for Lefort types of injuries.<sup>11</sup> The zygomatic arch fractures are treated usually by elevation via "Gillies" temporal approach<sup>12</sup> and may also be treated with a direct approach. Many statistical studies on facial fractures have appeared in the literature and have provided valuable scientific information.

Maxillofacial trauma runs the full gamut from minor discomfort to life-threatening injuries. Principles of airway management, adequate breathing and circulation are paramount in the initial management. Treatment should be based on a thorough knowledge of anatomy<sup>13</sup> and patho-physiology of facial trauma and treatment measures initiated that decrease morbidity and mortality. The most susceptible cause is road traffic accidents, amongst that the majority are motor cycle riders and the most susceptible age group is 21 to 30 years. The majority of maxillofacial trauma occurred in rush hours and the majority of cases delayed attended the clinic, that is because related injuries or the facial trauma is not diagnosed properly at the time of incidence.

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# AN AUDIT OF RENAL BIOPSIES

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## ABSTRACT:

*This is a prospective study of renal biopsies performed in the Department of Nephrology, Jinnah Postgraduate Medical Centre, Karachi, from January 2000 to June 2001 to see lesions of different kidney diseases. Pattern of renal diseases on biopsy for proven glomerulo-nephritis in relation to age and sex was also studied. All the biopsies were performed with normal bleeding time, initially with tru-cut biopsy needles and later with automated biopsy needles. A total number of 152 renal biopsies were done during this period. The most common renal lesions were: Focal segmental glomerulosclerosis 15.13%; followed by membranous nephropathy 13.15%, minimal change glomerulonephritis (GN) 11.18%, membranoproliferative GN 9.86%, mesangio-proliferative GN 7.89%, diffuse proliferative GN 3.94%, and chronic GN 5.26%; lupus nephritis 1.97%.*

*A male predominance was seen for all types of glomerulonephritis except lupus nephritis which is common in females. Biopsy related minor complications occurred in 40% patients. These complications included pain and tenderness at biopsy site, 27% haematuria, 8% infection, 3% developed perinephric haematoma, 1% and 0.6% required blood transfusion. This study provides important clues for further studies related to various types of glomerulonephritis.*

**KEY WORDS:** Renal biopsy, glomerulonephritis, complications.

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## INTRODUCTION

Percutaneous renal biopsy plays an important role in the assessment of renal disease and provides essential information which helps in the diagnosis, prognosis, and planning of the treatment of the renal diseases. Most of the time it provides the nephrologist vital information, regarding the management and disease specific therapy. Technical advances in radiographic imaging and tissue sampling have greatly improved and simplified this procedure.<sup>2</sup> The indications for renal biopsies are controversial. Many clinicians routinely perform biopsy of patients with nephrotic syndrome. The best determination of the potential benefit of an invasive diagnostic procedure comes from the demonstration that knowledge of a specific diagnosis guides the selection of treatments that produce improved outcomes.<sup>1</sup>

The success of percutaneous renal biopsy is defined not only by the ability to obtain adequate tissue for the

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diagnosis, but also by a safety profile for the patients so that they are not at risk of serious complication.<sup>3</sup> The review of literature shows that the risk of life threatening complication is less than 0.5% of cases.<sup>4</sup> In view of this, the procedure is usually performed as an out-patient procedure.<sup>5</sup> Traditionally, post biopsy care of patients consists of bed rest and close observation for blood pressure and haematuria for 24 hours. But as a result of favourable safety profile with latest Monopty needle the post biopsy observation period of six to eight hours is sufficient to assure patient stability prior to release from the hospital. This also helps the hospital in reducing the cost as well.<sup>6</sup>

The aim of this study is look at various lesions of kidney diseases on renal biopsies.

## PATIENTS AND METHODS

The kidney biopsies done during the period from 1.1.2000 to 30.6.2001 at the Department of Nephrology, Jinnah Postgraduate Medical Centre, Karachi, were studied. A total number of 152 consecutive percutaneous renal

biopsies were performed in children and adults, age ranging from 14 to 70 years. Out of these total biopsies, 55.68% were males and 44.32% females. The clinical presentation comprised proteinuria, asymptomatic glomerular microhaematuria, nephrotic syndrome, impaired renal function, and hypertension with ultrasonography showing good size kidneys. Information collected at the time of biopsy included age, sex, systolic and diastolic blood pressures, blood urea nitrogen, serum creatinine, total protein, serum albumin, urine routine examination, 24 hours urine for protein and in certain cases protein selectivity, the haemoglobin concentration, bleeding time, prothrombin time, thromboplastin time, and platelets were also estimated. It is our practice to perform percutaneous renal biopsies in patients with a normal bleeding time, no evidence of coagulopathy as determined by prothrombin time and activated thromboplastin time, and a stable blood pressure. The imaging was done by ultrasound. The lower pole of the kidney was identified for biopsy, preferably the left kidney.

Tru-cut needle was used in the initially but later on all the biopsies were performed with a 14-gauge automated biopsy needle. Following the procedure, patients were instructed to lie in bed, flat on the back for 4-6 hours and then remain in bed for 24 hours. The patients were monitored closely for signs and symptoms of complications, such as gross haematuria, flank pain, and hypotension. Each urine voided was checked for haematuria. The evaluation and discovery of a perinephric haematoma was most often suspected by the presence of flank pain with or without gross haematuria or a decrease in haemoglobin concentration and confirmed by ultrasonography.

## RESULTS

There were 55.68% males 44.32% females. The age ranged from 14 to 70 years. The clinical presentations were proteinuria 34%; nephrotic syndrome 36%; haematuria 9%; impaired renal function 16%, and hypertension, proteinuria, impaired renal function 5%. The various lesions seen were classified in three groups: (i) primary GN 77.63%, (ii) secondary GN 11.8%, and (iii) tubulo-interstitial disease 3.9%.

In the primary GN, the most common lesion was FSGS 15.13% followed by membranous nephropathy 13.15%, minimal change 11.18%, membrano-proliferative, mesangioproliferative, chronic GN, diffuse proliferative nephritis, cortical necrosis, and rapidly progressive GN, as shown in Table-I.

Lesion	Percentage
Focal segmental glomerulosclerosis (FSGS)	15.13%
Membranous glomerulonephritis	13.15%
Minimal change	11.18%
Membranoproliferative glomerulonephritis	9.86%
Mesangioproliferative glomerulonephritis	7.89%
Chronic glomerulonephritis	5.26%
Diffuse proliferative glomerulonephritis	3.94%
Cortical necrosis	2.63%
Rapidly progressive glomerulonephritis	1.31%

In secondary GN, the most common lesion was diabetic nephropathy followed by secondary amyloidosis, hypertensive nephropathy, and lupus nephritis 1.97% (Table-II).

Lesion	Percentage
Diabetic nephropathy	5.2%
Amyloidosis	2.63%
Hypertensive nephropathy	1.97%
Lupus nephritis	1.97%

Tubulointerstitial disease included interstitial nephritis (1.97%) and acute tubular necrosis (1.97%).

The failed biopsies were 6.5% with inadequate tissue 1.31% and no glomeruli in 5.2% cases.

Renal biopsy-related complications occurred in 40% of the total patients. Pain and tenderness at the biopsy site was the most common complication (27%) followed by gross haematuria 8%. The less common complications were infection (3%) and peri-nephric haematoma, one patient required (1%) blood transfusion.

## DISCUSSION

Percutaneous renal biopsy plays an essential role in the assessment of renal disease. It provides valuable diagnostic and prognostic information to the nephrologist. It is critical in directing management and disease-specific therapy. The technical advances in radiographic imaging and tissue sampling have greatly improved and simplified this procedure.<sup>7,8</sup> The success of renal biopsy is defined not only by the ability to obtain adequate tissue for diagnosis, but also by a safety profile that places the patient at minimum risk of serious complication.

Our study of biopsy-proven GN is for the age group 14-70 years carried out during the period from 1.1.2000 to 30.6.2001. The total number of renal biopsies done during this period was 152. While in Italy it has been reported for all age groups was 3.3 per 100,000 in 1993.<sup>9</sup> In France it has been reported 16.2 per 100,000 per year in the age group of 10-80 years for the period 1986-1990.<sup>10</sup>

Notable patterns of disease identified in this study is predominance of biopsy proven glomerulonephritis for all the histological categories, with the exception of lupus nephritis. In the present study peak age for lupus nephritis (15-35 years), focal and segmental glomerulosclerosis (40-50 years), membranous nephropathy (20-70 years). The results reported by Brignati et al<sup>11</sup> are quite comparable to the present review.

In the present study, the most common histological lesion in primary GN was FSGS. In the literature in adults the annual incidence of IgA disease has been reported to be

between 0.4 and 3.1 per 100,000, and that of focal glomerulosclerosis between 0.1 and 0.9 per 100,000, as has been shown in several studies.<sup>12,13</sup> The annual incidence of lupus nephritis has been reported at 0.3 per 100,000 in Italy.<sup>14</sup> However in the present study, we could not identify IgA nephropathy because we did not have facility for immunofluorescence study at our centre, so we have possibly missed out IgA lesions.

The present study shows that a definite diagnosis can be achieved in over 93% of cases with risk of complication needing blood transfusion in only one case. This study is comparable to the study reported by Dharmindra et al<sup>15</sup> which shows success rate of 95% cases and life-threatening complication less than 0.5% of cases. It is our recommendation that a 12-hour period of observation post-biopsy is the minimum that should be required to assure patient safety, with a 24-hour observation period being optimal.

True variation may exist between population, differences in biopsy rate, referral patterns, indications for renal biopsy and classification criteria for histological diagnosis. This study is only of 18 months duration which is relatively short, so it limits the comparisons with data from other countries. However, the data collected in this study in relation to age and sex distribution provides important insights into potential risk factors for various glomerulonephritides for further study, an area of research which to date has been limited, and needs further attention.

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# A SURVEY OF INFANTILE ESOTROPIA, A COMMON CHILDHOOD PROBLEM

SEEMA QAYYUM, ZIA-UR-REHMAN KHAN.

## ABSTRACT:

*This is a retrospective study carried out at the Department of Pediatric Ophthalmology, The Children Hospital and Institute of Child Health, Lahore from June 1999 to October 2000. A total of 30 patients diagnosed as Essential Infantile Esotropia, who had no other associated ocular problem, were included in the study.*

*The patients were divided into 3 groups according to age at presentation, the first group (patients in the age of 6 to 12 months) were 23%, 2nd group (between the ages of 12 months to 24 months) 4% and 3rd group between ages of 2 years to 5 years) 30% Patients that could cross fixate were 43%, true alternators 22%, whereas those with right or left dominance pattern were 35%. Those with an associated medical problem were 53.3%. Amblyopia therapy was required preoperatively in 36.6% and 6.6% needed glasses. Bimedial rectus recession (BRR) was performed in 66.60% and recess/resect 36.60%. Following BRR 66.66% had orthophoric eyes, the rest had residual esotropia of less than 10 prism diopter. Following recess/resect procedure 54.40% were orthophoric whereas 45.50% had residual esotropia of less than 10 prism diopter.*

**KEY WORDS:** *Infantile Esotropia, Bimedial rectus recession*

## INTRODUCTION

Congenital esotropia is a confusing term. Most reports in literature have considered infants with confirmed onset earlier than six months as suffering from infantile or congenital esotropia. It represents the most common form of strabismus, with an incidence of 1-2%.<sup>1</sup> The incidence being higher in patients with cerebral palsy, hydrocephalus and other neurological disorders. Sex distribution is equal. Transmission in many families seems to be an irregular dominant trait.

Congenital esotropia syndrome consists of large angle esotropia, usually in excess of 35 prism diopters, deficient abduction -pseudoabduction paralysis. Cross fixation is typical and alternation of fixation occurs only in side gaze. By the age of two years the child becomes a true alternator. It may be associated with disassociated vertical deviation, inferior oblique over action, nystagmus,

nystagmus blockage syndrome and asymmetrical optokinetic nystagmus, rarely refractive errors in excess of 2.0 DS.

Differential diagnosis includes broad epicanthal folds, unilateral sixth nerve palsy, accommodative esotropia, high accommodative convergence to accommodation ratio. Treatment strategy comprises glasses, amblyopia therapy, and surgery. The best results are achieved by monofixation i.e. straightening the eyes to within 10 prism diopters before the age of two years and maintain the eyes in this alignment during the period of immaturity.<sup>2</sup> Follow up care of patients may be occlusion to provide equal vision in both eyes and glasses; residual esotropia can be reduced to less than 10 prism diopters by correction of as little as 1.0 DS in dominant eye. After the age of four years assessment should include visual acuity, fusion and stereopsis

## PATIENTS AND METHODS

A retrospective study was carried out on patients diagnosed as suffering from infantile esotropia at the

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Patients with associated ocular problem that could affect the visual acuity were excluded. A serial number was allotted to each patient and a detailed history was recorded. The history included antenatal history, birth history, milestones, age at which first squint was noticed and any complaints regarding visual acuity.

General health problems were highlighted, such as hydrocephalus, microcephaly, cerebral palsy, spastic quadriplegia, history of birth asphyxia and developmental delay. Family history was noted in detail to rule out similar problems in any of the parents or siblings. Clinical examination included visual acuity. Preverbal children were assessed for behavior, occlusion of one eye and noticing child's response, the fixation pattern preferential looking charts, hundreds and thousands, preferential looking charts and CSM. In verbal children assessment included Sheridan Gardiner test, linear E-chart and standard Snellen's chart.

Orthoptic examination included general inspection, cover test, cover uncover test, alternate cover test and degree of squint measurement with the help of prism bar. In unco-operative children Hirschburg test was relied upon. Ocular movements were tested in all directions to rule out any restrictive or paralytic element and to diagnose the presence of inferior oblique over action. Retinoscopy was done with atropine eye drops under sedation. Slit lamp examination was carried out under sedation with the help of hand held slit lamp to rule out any associated ocular problem. Dilated Fundus examination was carried out under sedation to rule out any retinal cause of reduced visual acuity.

The treatment strategy consisted of amblyopia therapy when needed, glasses, but surgery was planned when the child started to alternate. Bimedial rectus muscle recession was done in patients who could cross fixate or were true alternators. Recess/resect procedure was adopted in patients who had some dominance pattern. In case of vertical muscle involvement surgery was planned on these muscles also.

Follow up examination was done on first post-operative day, first week, two weeks, one month and six months to rule out presence of infection, assessment of ocular motility, eye alignment, visual acuity, afferent papillary defect and good red reflex elicited from both fundi. Glasses were prescribed to reduce residual esotropia of less than 10 prism diopter by correction of as little as 10DS in the dominant eye. Occlusion therapy was given when needed.

**RESULTS**

A total of thirty patients were included in the study. There were 17 male and 13 female patients.

Three groups were made according to age of presentation:  
 Group I (6 months - 12 months) - 23%  
 Group II (1 Year - 2 Years) - 47%  
 Group III (2 Years - 5 Years) - 30%

The degree of squint was measured with the help of prism bar and depending on the degree of squint they were divided into three groups as follows.

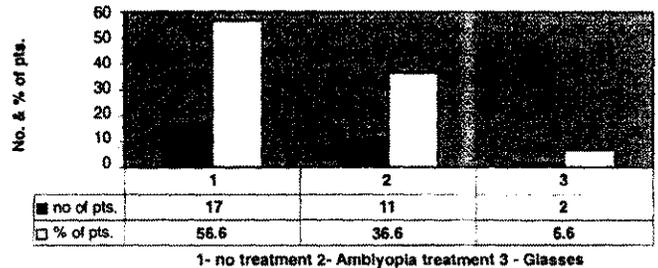
Group I - less than 30 prism diopter - 11 patients (37.5%)  
 Group II - 30 to 40 prism diopter - 15 patients (50%)  
 Group III - more than 40 prism diopter - 4 patients (12.5%)

The child was either a true alternator, cross fixator or had a right or left dominance pattern with some degree of amblyopia. Cross fixator were 43%, 22% true alternators, whereas 35% had either a right or left dominance pattern (right 16% and left 19%).

The patients with an associated medical problem were 53.3% whereas 46.6% had no associated medical problem.

The Patients needing no pre-operative treatment were 56.6% but 36.6% of needed amblyopia therapy and 6.6% needed glasses. (Fig. 1)

**Fig. 1: Pre-operative management**

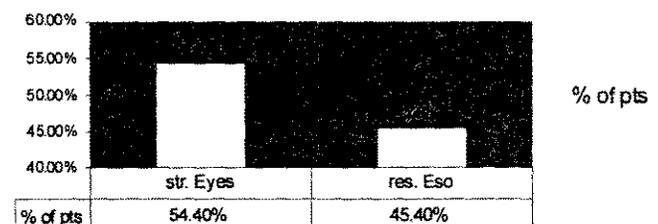


Surgery was performed when the clinical information was complete and reproducible at two consecutive visits. Bimedial rectus recession was done in 60% of patients whereas 37% had recess/resect procedure done and 3% needed an associated vertical muscle surgery.

Of the patients having BRR 66.6% had straight eyes, and 33.3% a residual esotropia of less than 10 prism diopter.

Of the patients who had planned resect recess procedure done 54.4% had straight eyes whereas 45.6% had residual esotropia of less than 10 prism diopter.

**Result of surgery following recess/resect procedure**



## DISCUSSION

Surgery was planned on patients when we were convinced that the clinical information was complete and reproducible at two consecutive visits. Tychsen<sup>3</sup> stressed that when the surgeon has documented that the infant has a constant esotropia exceeding 12-prism diopter, surgical re-alignment should be performed. Zak and Morin<sup>4</sup> claimed that corrective surgery from age 5-24 months produced successful alignment of the eyes to within 10-prism diopter of orthophoria with a high prevalence of fusion and stereopsis and a lower prevalence of DVD. Furthermore 100A and amblyopia were less frequent when surgery was performed at an early age. Birch et al<sup>5</sup> explained that better stereopsis is achieved with early surgical alignment because the duration of misalignment is shortened and not because alignment is achieved at an early critical period of visual maturation. Cosmetic consideration is also important. It seems possible that in this regard there is a swing towards early surgery.

Keeping all the above points in consideration we opted for surgery at an early age. Surgery was planned when we were sure of our clinical observation. Initial surgery was planned on two muscles. Bimedial rectus muscle recession was planned in patients who were cross fixators or who could alternate. A recess/resect procedure was adopted in patients with a right or left dominance pattern.

While apparent benefit with regards to improved binocularity and visual acuity has been demonstrated with early surgery, a need exists for repeated thorough observation in the first decade of life, as patients need careful post-operative monitoring for amblyopia, DVD, and accommodative esotropia.

A high percentage of patients with esotropia have a co-existing systematic abnormality.<sup>6</sup> The percentage measured in our survey may not be applicable to other

practices because of referral bias. However clinician should consider that child presenting with infantile esotropia appears to be at risk for co-existing ocular or systemic disease. In our patients contrary to selective approach for large angle congenital esotropia we did not consider initial surgery on 3 or more muscles as surgery on two muscle is quicker, simpler and less traumatic and leaves the lateral rectus muscle unoperated for patients requiring a second surgery.

Early surgery (1-2year age) was planned keeping in view that recent studies of infantile esotropia suggests that early significant alignment may enhance stereopsis as it establishes alignment during an early initial period for the development of stereopsis and also minimizes the duration of misalignment, The ophthalmologist must however be vigilant in following the initially aligned patient and be ready to treat vertical motor defects, amblyopia and acquired refractive errors

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# PERCUTANEOUS DRAINAGE OF A PANCREATIC PSEUDOCYST: A CASE REPORT

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## ABSTRACT:

*A case of pancreatic pseudocyst managed by percutaneous external drainage (PED) under ultrasound guidance with the help of a catheter is presented. This treatment modality is not common in our set-up. The PED is now well established as an effective alternate to surgery. The method is simple, inexpensive and safe.<sup>9</sup>*

**KEY WORDS:** *Percutaneous external drainage Pancreatic pseudocyst.*

## INTRODUCTION

Pancreatic pseudocyst (PP) is a localized collections of pancreatic secretions enclosed in a wall of fibrous or granulation tissue with no epithelial lining.<sup>1</sup> Morgagni gave the first description of pancreatic pseudocyst.<sup>2,3</sup>

Most pancreatic pseudocysts are unilocular and are located in the lesser sac. Other sites are in the pancreatic tissue (retention cyst), transverse mesocolon, omentum, behind pancreas, mediastinum and pelvis.<sup>3,4</sup> Patients usually present with pain, vomiting, compression effects, epigastric swelling. Ultrasound and CT scan are diagnostic.<sup>4,5</sup>

Therapeutic options for treatment of PP are numerous, such as percutaneous external drainage (PED), endoscopic drainage, endoscopic transpapillary drainage, surgical external and internal drainage (cystogastrostomy, cystojejunostomy, cystodudenostomy) or resection of cyst.

The first PED was performed in 1875, while in 1882 Bozeman surgically removed cyst and in the following year Gusserman marsupilised the cyst to perform external drainage. Cystogastrostomy, cystodudenostomy and cystojejunostomy were introduced in 1921, 1928 and 1931 respectively. Ultrasound guided percutaneous puncture and successful radiological drainage were done in 1976 and 1980, respectively.<sup>2,3,5</sup>

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Recent data suggest PP can be observed or treated successfully by percutaneous external drainage.<sup>6</sup>

## CASE SUMMARY

A young man suffered trauma to the epigastric region from motorbike handle and was treated for pancreatitis at a local hospital. Two weeks later he developed epigastric mass with persistent vomiting and was then referred to Jinnah Postgraduate Medical Centre. Here he was on conservative treatment but symptoms did not resolve. Ultrasonography revealed pancreatic pseudocyst involving the lesser sac with compression effect on stomach (Fig.1). Ultrasound guided aspiration was carried

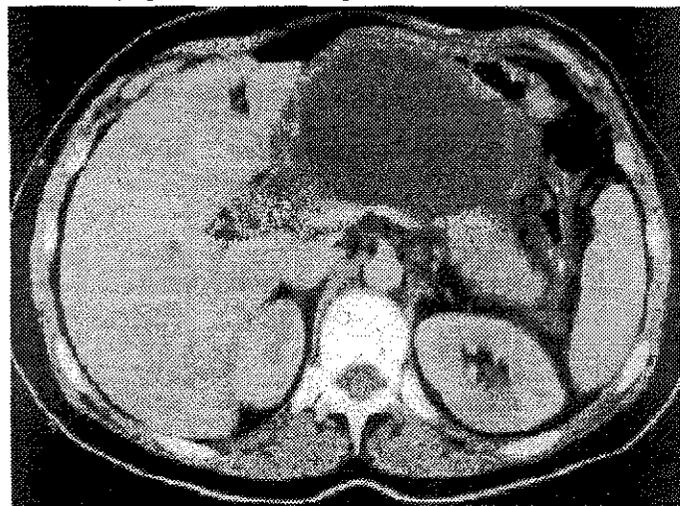


Figure 1: CT scan showing compression effect on stomach

out and a catheter left in the cyst cavity; 2000 ml of fluid drained on the first day and subsequently, draining fluid decreased in quantity and the patient became better. On the third day catheter was removed and the patient sent home. Weekly followup for 4 weeks and later every 6 months has revealed no complication. After 1.5 years patient is alright with no symptoms.

## DISCUSSION

At present appropriate treatment for PP is controversial and reports comparing surgical to PED are scarce. Intervention is indicated when the size of the cyst is more than 6cm in diameter, symptoms of toxemia, obstruction (jaundice, vomiting) develop or cyst persists longer than 6 weeks. After 6 weeks time it is highly unlikely that the cyst resolves.<sup>1,3,7</sup> Minimally invasive techniques are not suitable when cyst wall is more than 10mm thick.<sup>1,2</sup> Patients from idiopathic collections benefit more by non-surgical methods.<sup>3</sup>

PED should be selected in high-risk patients and who have gross infection.<sup>2</sup> Simple drainage of pseudocyst carries a recurrence of 20% but pigtail catheter insertion allows the cyst wall to remain collapsed. The effectiveness and necessary duration of PED seems to be related to the presence of a communication between the pancreatic duct. Drainage should be prolonged in these cases.<sup>3</sup> In one study hospital stay was lesser in patients treated with percutaneous external drainage as compared to patients treated surgically i.e. 20 days vs. 29 days.<sup>2</sup> Various routes can be chosen for PED i.e. retroperitoneal, transperitoneal, transgastric, transhepatic or transduodenal.<sup>10</sup>

Controlled pancreatic fistula is a recognised complication, which closes 2 to 6 weeks after the catheter is removed. Other complications are superficial colonisation,

pneumothorax, pleural effusion and minor haemorrhage.<sup>3</sup> We conclude that PED is a quick, safe and inexpensive modality. Although, in our patient this mode provided good result, but its effectiveness needs be assessed by prospective trials in our set-up.

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# INFREQUENT PRIMARY SITES FOR HYDATED CYSTS: CASE REPORTS

GHULAM MUSTAFA NANDWANI, KAMRAN AHMED MALIK, NAIMA

**ABSTRACT:**

*Hydatid disease can occur any where in the body.<sup>1</sup> It is very rare in muscles. We present two cases to emphasize that hydatid disease should be kept in mind in all cystic lesions of the body; especially in endemic areas. In Pakistan breaking of chain between primary and secondary hosts for E granulosus is not very effective; poor surroundings of slaughterhouses and use of natural fertilizers are the main culprits*

**KEY WORDS:** *Hydatid cyst, muscle, gluteus, psoas.*

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**CASE NO. 1**

A 50 years old man presented in the out-patients Department with complaints of vague abdominal pain for 6 months. There was no history of trauma or fever though sometimes he was constipated. Examination revealed a cystic retroperitoneal mass 5x7 cm in size just to the left of umbilicus. His haemoglobin was 15G/dl, TLC 6500 with Eosinophils 1%. Ultrasound abdomen revealed a cystic mass between the left kidney and pancreas that was suspicious of pancreatic pseudo cyst or renal cyst. His CT abdomen showed 10x8 cm cyst between the upper pole of left kidney and left psoas muscle with compression effect on the descending colon. Exploratory laparotomy concluded hydatid cyst arising from the left psoas muscle which was later proved by biopsy. Rest of the viscera were normal. Total hospital stay was 4 days with unremarkable post-operative recovery. Currently, he is in followup for the last 6 months and ultrasound abdomen and chest X-ray are normal.

**CASE NO. 2**

A 16 years old boy presented in accident and emergency department with recurrent swelling at right gluteal region along with fever for the last 8 years. He had gone through incision and drainage and wound debridement couple of times for this complaint. All the reports of his draining fluid

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were negative for culture. Examination revealed 3x2" swelling at right gluteal region with multiple openings discharging thin pus. His haemoglobin was 14G/dl, TLC 12000, N 70 and E 1. Sinogram showed a cavity reaching up to the iliac bone. It was decided to explore the sinus. Peroperatively there was a thick walled cavity containing clear fluid with multiple small daughter cysts. Cavity was washed with hypertonic saline solution, deroofed and filled with omentum. Albendazole 10 mg/kg/day started postoperatively. Biopsy confirmed the diagnosis of hydatid cyst. His postoperative recovery was unremarkable. Total duration of hospital stay was 7 days. Followup ultrasound abdomen and chest X-ray are normal.

**DISCUSSION**

Hydatid disease is endemic in cattle and sheep-raising regions of the world. Hydatid cysts are commonly known in liver (50-70%) and lungs (20-30%).<sup>2</sup> Simultaneous occurrence is reported in liver and lungs in 18-35% cases; while 0.02-2% in heart, 0.25-0.75% in pancreas and 1-2% in brain.<sup>1</sup>

Hydatid cysts are reported in almost all body tissues. Muscular cysts are reported in diaphragm,<sup>1</sup> adductor longus,<sup>3</sup> quadriceps<sup>4,5</sup> intercostal muscles,<sup>6</sup> tongue<sup>7</sup> and abdominal recti.<sup>8</sup> Apart from the above-mentioned muscles cysts in retrovesical pouch,<sup>9</sup> ovary,<sup>10</sup> spleen, retroperitoneum,<sup>11</sup> cervical region,<sup>12</sup> orbits<sup>13</sup> and breasts<sup>14</sup> have also been reported.

The treatment of hydatid cyst is primarily surgical. However, pre and postoperative Albendazole and Praziquantel are considered to sterilize the cyst, decrease the chances of anaphylaxis, decrease the cystic wall tension, and thus reduce the spillage during surgery and recurrence.<sup>1</sup> The recurrence rate is 10%.

Percutaneous aspiration of cyst is alternative to surgery and has shown encouraging results. There are two stages of treatment. For cysts <5cm only stage 1 is required i.e. PAIR.<sup>15</sup> The cyst is punctured with or without cutting device<sup>16</sup> under ultrasonic or CT Scan guidance and aspirated. After that cytotoxic and sclerosing agent (absolute alcohol or hypertonic saline) is injected in the cyst cavity. Later re-aspiration is done. For larger cysts, stage-II is required i.e. cyst cavity is catheterized. There is no mortality reported during the procedure.<sup>16</sup> Early complications include anaphylaxis (very low incidence), urticaria, fever, persistent draining fluid, infection, biliary fistula and pleural effusion. Late complications are reoccurrence and intrabiliary cyst rupture.<sup>15,16,17</sup> Studies report encouraging short and long-term results for this mode of treatment. The main problem is spillage of hydatid fluid with spread of the disease.

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# POST TRAUMATIC SMALL BOWEL STRICTURE: A CASE REPORT

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## ABSTRACT:

An unusual case of delayed post-traumatic stricture of the intestine localized in the mid jejunum, resulting from blunt abdominal trauma is presented. The cause of the stricture was localized mesenteric ischaemia. At operation, the stricture was resected and the patient made an uneventful recovery.

**KEY WORDS:** Blunt abdominal trauma, mesenteric injury, intestine.

## INTRODUCTION

Road traffic accidents especially steering wheel injuries are common cause of blunt abdominal trauma. The small bowel is the commonest part of the gastrointestinal tract to be affected and patients usually present immediately after injury requiring urgent laparotomy.<sup>1</sup> Delayed small bowel stricture resulting from blunt abdominal trauma is unusual.

## CASE REPORT

A 45 years old man was involved in a road traffic accident while driving a truck. He presented to a local hospital with severe abdominal pain and tenderness but no signs of

peritonitis. All investigations including a C.T scan of abdomen appeared normal. The patient did not have any other injuries and was treated conservatively. His abdominal pain gradually decreased and he was sent home.

Four months later, he presented with increasing colicky abdominal pain especially after meals and abdominal distention. His medical history was insignificant and he had no history of gastrointestinal disease. Physical examination was unremarkable. Ultrasound abdomen revealed an isolated long, tight 9-10 cms stricture involving jejunal loop with marked distention of proximal jejunum (Fig.1). This was confirmed by small bowel barium study (Fig.2). At laparotomy, small bowel mesentery at that level was scarred. Resection of the involved segment of jejunum with primary anastomosis was performed. The patient had uneventful recovery and was sent home.

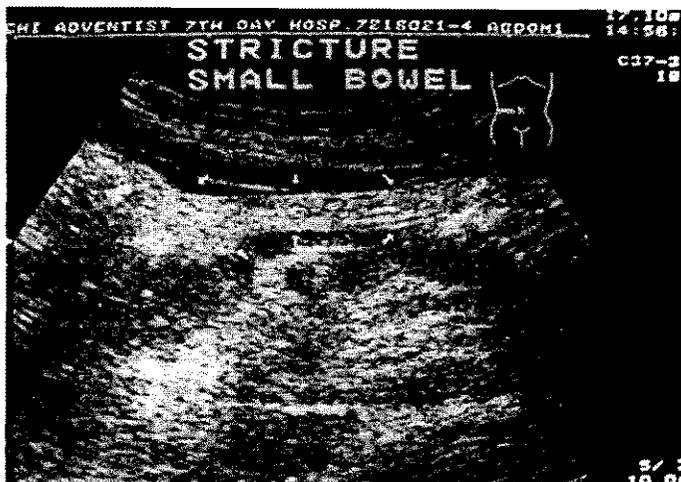


Figure 1: Ultrasound image of middle jejunum



Figure 2: Small bowel study showing a long tight stricture in middle jejunum with marked proximal dilatation.

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Pathological examination of the excised gut stricture revealed almost complete ulceration of the mucosa with replacement by granulation tissue associated with transmural chronic inflammation and formation of lymphoid follicles reaching up to serosa. Features consistent with a localized ischemic process.

## DISCUSSION

Blunt abdominal trauma constitutes a significant proportion of injuries encountered in accident and emergency departments. Injuries to the intestine and mesentery are found in a quarter of patients undergoing surgery, making injury to the small intestine the third commonest organ affected after the spleen and liver. Other steering wheel-associated injuries include abdominal wall disruptions, pancreatic injuries and lumbar spine fractures.

Gastrointestinal tract and mesenteric injuries are commonly the consequence of both deceleration and shearing stresses at points of fixation or compression against the vertebral column.<sup>2</sup> Usually these injuries are recognized and treated soon after the event. Rarely, however an ischemic or a limited perforated segment may go unrecognized, only to present with symptoms at a later date. A number of mechanisms may be involved and the commonest of these is localized mesenteric ischemia.<sup>3</sup> However, other pathophysiological mechanisms include sub serosal haematoma formation,<sup>4</sup> serosal tears resulting in adhesions and unrecognized mesenteric, diaphragmatic or abdominal wall disruptions. Also it has been suggested that stricture could follow contusions from direct crushing of the gut against the vertebral column.<sup>3</sup>

Physical examination is often questionable in the trauma patients because of the presence of associated chest, head and pelvic injury<sup>5</sup> and the possibility of intoxication.

Computed tomography and diagnostic peritoneal lavage lack sensitivity in the early diagnosis of isolated bowel injuries<sup>6</sup> as occurred in our case.

The late presentation of small bowel strictures following blunt abdominal trauma is uncommon. When they do so, the time of presentation is between 5 to 8 weeks after injury.<sup>7</sup> When abdominal symptoms reappear in a patient who has sustained BAT, stricture formation should be taken into account and confirmed or excluded by a small bowel study or an ultrasound. Although the later is not yet recognized as the principal investigation for diagnosing intestinal disease, both ultrasound and barium studies helped in the diagnosis of this patient.

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