

RURAL SURGERY;

EXPERIENCE AT RURAL AND BACKWARD DESERT REGION OF PAKISTAN

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ABSTRACT.....objective: To study the pattern of Urological & Non-Urological cases and their management at rural hospital. **Study Design:** descriptive and case series study. **Place and Duration of Study:** All surgical patients managed at civil hospital Mithi, from 3rd June 2009 to 3rd June 2012. **Methodology:** In this study 4657 patients were enrolled. All patients presented with symptoms suggesting surgical disease and managed as surgical cases were included in the study. These patients were either admitted via outpatient department (OPD), emergency department or operated as OPD cases. The patients who received 1st aid medication and referred to tertiary care were not included. The variables noted and analyzed were patient's demographic data, provisional and final diagnosis, disease pattern, presentation, mode of admission, mode of treatment, nature of operation, complications and final outcome. All the data was analyzed by SPSS version-16 on computer. **Results:** During three year study period, 4657 patients were managed either conservatively or operated upon. Out of total, 2591(55.6%) were emergency and 2066(44.36%) were elective admissions. The male female ratio was 4:1 .The mean age of patients was 36.5 Years. Urinary tract diseases were responsible for 1638 (35.17%), alimentary tract diseases 1242 (26.6%), trauma 932 (20.01 %), soft tissue infections 546 (26.9%),superficial lumps 367 (18.13%) admission. Most common operative procedures for urinary tract diseases 409 (20.20%), soft tissue infections 546 (26.9%). superficial lumps 367(18.13%), alimentary tract diseases (15.06%) 305, trauma (soft tissue repair and fractures 14.9 %)(303), were major bulk for operations. Regarding procedures Abscesses incision and drainage in 197 (22.6%) patients, cystolithotomy in 153 (17.6%),Hernioraphy (130) 14.9%, appendectomy 105 (12.09%),haemorrhoidectomy 51(5.8%),breast abscess 38 (4.3%) breast lump(fibroadenoma) 25 (3.6%), hydrocele23 (2.6%), Ureterolithotomy 22 (2.5%) laparotomy 15 (1.7%), pyelolithotomy12, (1.3%) fissure in ano 13, (1.4%) undecended testis 12 (1.3%) Orchidectomy11 (1.3%) and abscesses psoas, perinal, scrotal 13 (1.4%), 18 (2.07%) , 12 (1.3%) respectively. **Conclusions:** The concluded that the most common cause of seeking surgical care at back ward rural Tharparker was urinary tract diseases. Presence of surgical specialist at remote and back ward region Tharparker is candle in the dark.Main reason of patient referral to tertiary care was deficient in skill medical and surgical professionals, paramedic staff and medical equipments.

Key words: Urological & Non-Urological surgery, rural area, procedures.

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INTRODUCTION

Access to surgical care has been deemed an essential component of human rights¹. It is estimated that 2-3 billion people (approximately one third to half of the world's population) have no access to basic surgical care². According to the World health report surgical conditions accounts for 11% of total lost years of healthy life³. Surgery around the world is increasingly being recognized as primary care strategy essential to improve health. However low and middle income countries have suffered burnt of this delay recognition⁴. Provision of basic surgical care has been shown to be highly cost effective intervention⁵. Governments have failed to prioritize surgery and

millions continue to die around the world due to unmet of surgical needs⁶. Developing countries such as Pakistan must acknowledge surgical disease as major public health issue and prioritize resources, research and intervention accordingly⁷.

Pakistan is densely populated country. Pakistan has an estimated population of 173.5 million (July, 2010), which is growing at rate of 2.05% per annum and has a rural and urban distribution of 64% & 36 % respectively⁸. All the tertiary care facilities are concentrated in large cities. The rural communities do not have access to the minimal quality surgical care and cannot afford it⁹. On paper the state has system in

place including basic health units (5171), maternal and child care centers (852) to provide primary health care. Rural health units (551) are supposed to provide secondary health care facilities including emergency surgical and obstetric care, but unfortunately there is a very unreliable mechanism of implementation and monitoring system¹⁰.

District Tharparker is a remote and back ward region of Sindh province of Pakistan. Government has not provided basic human needs like drinking water, electricity, roads, transportation and education. Health facilities are poor, especially at secondary care emergency surgical and obstetric care are not available at all. Tertiary care hospitals are at distance of 300- 600km at Hyderabad or Karachi, with traveling time of 5-10 hours. For referral in these cities needs Rs. 5000-10000 cost of ambulance charges only and 80% of this region population is poor and can't afford this. Due to unequipped ambulances and inadequate First aid medication at secondary care most critical patients expired in the way before reaching tertiary care. The purpose of this study is to see pattern of common surgical problems and management at under developed area.

MATERIAL & METHODS

This was a descriptive and case series of all surgical patients managed at civil hospital Mithi. All patients presented with symptoms suggesting surgical diseases and managed as surgical cases were included in the study. These patients were either admitted via outpatient department (OPD), emergency department or operated as OPD cases. The patients who received 1st aid medication and referred to tertiary care were not included. The variables noted and analyzed were patient's demographic data, provisional and final diagnosis, disease pattern, presentation, mode of admission, mode of treatment, nature of operation, complications and final outcome. All the data was analyzed by SPSS version-16 on computer.

RESULTS

The patients were enrolled from 3rd June 2009 to 3rd June 2012. During three year study period, 4657 patients were managed either conservatively or operated upon. All patients belong to remote area desert Tharparker. Eighty percent of our patients were poor, illiterate either herd men or farmer with poor personal hygiene. Out of total, 2591(55.6%) were emergency and 2066(44.36%) were elective admissions. The male female ratio was 4:1. The mean age of patients was 36.5 Years with range from one month to 90 years. Urinary tract, alimentary tract diseases, trauma and soft tissue infections formed the main bulk of cases.

Urinary tract diseases were responsible for 35.17% (1638) and alimentary tract diseases 26.6 % (1242), trauma 20.01 % (932) and soft tissue infections 26.9% % (546), superficial lumps (18.13%) 367 of total admission. Of 4657 patients 2024 (43.46%) were managed by operations and 2633(56.53%) by conservative (Chart No.1, Table-I).

Most common operative procedures was urinary tract diseases 409 (20.20%), soft tissue infections 546 (26.9%). superficial lumps 367(18.13%), alimentary tract diseases (15.06%) 305, trauma (soft tissue repair and fractures 14.9 % (303), were major bulk for operations. Of 868 Common operations performed under general anesthesia or spinal anesthesia were Abscesses incision and drainage 22.6%(197), cystolithotomy 17.6%(153), Hernioraphy 14.9%(130), appendectomy 12.09%(105), haemorrhoidectomy 5.8%(51), breast abscess 4.3 % (38), breast lump (fibroadenoma) 3.6%(25), hydrocele 2.6%(23), Ureterolithotomy 2.5%(22) laprotomy 1.7%(15), pyelolithotomy 1.3%(12), fissure in ano 1.4% (13), undecended testis 1.3%(12), Orchidectomy 1.3%(11) and abscesses psoas, perianal, scrotal 1.4%(13), 2.07%(18), 1.3% (12) respectively. Of 1156 operations performed under local anesthesia or sedation trauma was most

prominent (303) cases of which soft tissue repair (187), fractures back slab/POP (85), stump formation (17), sebaceous cyst excision (149), total circumcision due to BXO or chronic balanitis (118), abscesses incision and drainage (106), wound debridement (98), Warts, polyp, granulomas (65), Lipoma (38), corn in foot and hands (36), IGTN (31), stricture urethra (27), iatrogenic rupture of urethra (27), foreign body removal (23), impacted urethral stones (28), Teared ear lobule suturing (42), cervical lymph node biopsy (31), umbilical granuloma (17) (Table-II).

Among 2633 patients conservatively managed patients (Table-III) Uretric/renal colic 26.5 % (356) trauma and accident 12.6% (332) mostly minor injuries and received 1st aid medication and discharged in 12-24 hours. Urinary tract infection 12% (318) mostly young adults and sexually active patients. Enlarge prostate 8% (213) managed by alpha blockers. Head injury 7.2% (192), these patients have minor symptoms of head injury after RTA, assault or fall from tree kept under observation for 24 hours and discharged, appendicular lump 8.24% (217), these delay presentation patients referred from other secondary centers of Tharparker where surgeons are not available or by general practioner (GP), NSAP 6% (159) acute renal failure 4% (106) mostly due to gastroenteritis in summer season, snake bite and in female commonly due to antepartum hemorrhage (APH), PPH, puerperal sepsis, acute or recurrent appendicitis 4.6% (123) these patients manage conservatively due to non willing for surgery. liver abscess 1.5% (42) fissure in ano 1.2% (34) these are those patients who had severe anal spasm and needs hospital management while majority 214 patients of fissure in ano managed as OPD cases on conservative treatment of 0.2% GTN local application.

Of 356 patients 82.3% (293) of Ureteric colic mostly young patients and 60% of patients of ureteric colic has only on ultrasound extra renal obstruction and

stone not seen on x-ray KUB while 30% have faint shadow small of 4mm stones and 10% have opaque stones seen. About 70% patients of Ureteric colic admitted in emergency due to pain lost follow up and 30% have second visit due to pain and 19% Of these patients passed stones on conservative management and 17.6% (63) of renal colic due to either stones or pyelonephritis. The operative mortality was one patient (0.05%) due to anesthetic complication. While wound infection was main post-operative complication in 30% of during three year 417 patients referred to tertiary care. Most prominent cause was trauma patients (55%) followed by malignancies 24%, acute abdomen 13% and miscellaneous 8%.

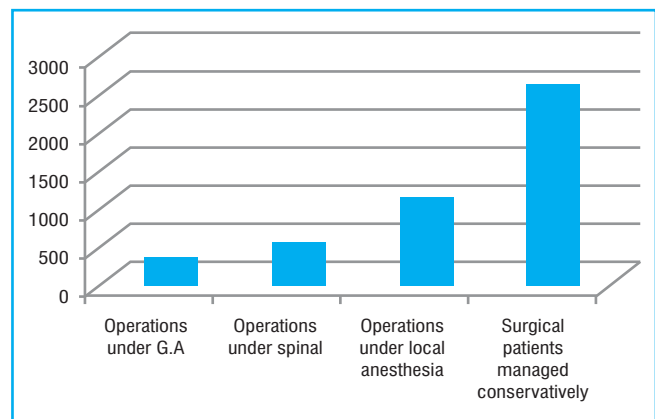


Fig.1: List of procedures done under different types of anesthesia

DISCUSSION

This is 1st time in history of Tharparker that general surgeon was appointed in district hospital Mithi. I was responsible for management of all general surgery cases including ortho, neuro, urology and ENT cases. Management of surgical cases at this area was very difficult and different task from urban hospitals because in our country rural healthcare setups are generally deficient in skilled medical and surgical professionals, paramedics staff and medical equipments. For diagnosis you can more rely on your clinical judgments than investigations because no pathologist, radiologist in near vicinity.

At remote and backward region Tharparker we

Procedure	No. of patients	Percentage
Abscess (glutal, shoulder, axillary, hands, skull, etc)	197	22.69%
Cystolithotomy	153	17.62%
Appendectomy	105	15.75%
Inguinal hernia	78	11.70%
Haemorrhoidectomy	51	7.65%
Breast Abscess	38	5.7%
Breast lump (fibro adenoma)	25	3.75%
Hydrocele	23	3.45%
Perianal abscess	18	2.7%
Laprotomy	15	2.2%
Obstructed inguinal hernia	14	2.1%
Psoas abscess	13	2.0%
Scrotal abscess	12	1.8%
Undecended testis	12	1.8%
Orchidectomy	11	1.6%
Varicocele	07	1.1%
Ureterolithotomy	22	3.2%
Pyelolithotomy	12	1.8%
Umbilical hernia	16	2.4%
Fistula in ano	08	1.3%
Fissure in ano	13	2.0%
Prostectomy	02	0.3%
Betel nuts impaction	02	0.3%
Degloving injury soft tissue (mostly by goat, cow horn trauma in herd men or RTA)	02	0.3%
Burst abdomen with gut out side by cow horn	02	0.3%
Vesicocutaneous fistula	01	0.15%
Litholopaxy	03	0.45%
Diagnostic cystoscopy	02	0.3%
TURBT	2	0.3%
DJ removal	4	0.6%
Total	868	100%

Table-I. Type of operations performed under G.A or spinal anesthesia (n-868)

Procedure	No of patients	Percentage
Abscess (different parts of body)	106	9.16%
Trauma (RTA, assault, fall, etc)	303	24.24%
a. Soft tissue injuries (repair, suturing)	137	10.96%
b. Fractures (back slab, pop, traction)	133	10.8%
c. Stump formation (Amputated fingers, toes)	17	1.36%
Sebaceous cyst excision	149	11.92%
Circumcision (due to BXO, secondary phimosis, balanitis etc)	118	9.44%
Wound debridement (different parts of body)	98	7.84%
Lipoma excision	38	3.04%
Corn excision	36	2.99%
IGTN (in groining toe nail) wedge excision	31	2.48%
Stricture urethra (dilations)	27	2.16%
Rupture urethra (iatrogenic) suprapubic puncture	19	1.52%
Warts, polyp, granulomas excision	65	5.2%
Foreign bodies in limbs (mostly needles)removal	23	1.84%
Rectal prolapsed (manual reduction)	34	2.72%
Impacted urethral stones (pushed back and catheter or Urinary diversion)	28	2.24%
Scrotal injury suturing	09	0.72%
Tearred ear lobules suturing	42	3.36%
Extra fingers (polydectely)	07	0.56%
Diabetic foot	16	1.28%
Cervical lymph node biopsy	31	2.48%
Umbilical granuloma	17	1.36%
Total	1156	100%

Table-II. Emergency and elective procedures under local anesthesia: (n-1156)

Diagnosis	No of patients	Percentage
Uretric / renal colic	356	13.52%
Trauma (RTA, fall, assault, machine injury etc)	332	12.28%
Urinary tract infection (Epididymoorchitis, urethritis, cystitis, pyelonephritis)	318	11.76%
Head injury (due to RTA, fall, assault)	192	7.10%
Enlarge prostate with retention, UTI, hamaturia, renal failure	213	7.88%
Appendicular lump	217	8.0%
Acute or recurrent appendicitis	123	4.55%
Non specific abdominal pain (NSAP) or abdominal colic	159	5.88%
Acute renal failure (diarrhea, vomiting, snake bite, puerperal sepsis, APH, PPH, sepsis, BOO).	106	3.92%
Acid peptic diseases	102	3.77%
Acute abdomen	157	5.80%
Obstructed inguinal hernia	37	1.36%
Critical surgical patients (gut perforation, gangrenous hernia with sepsis, haemetmesis, melena, rupture visera, vascular injury)	28	1.03%
Liver abscess	42	1.55%
Acute fissure in ano with severe spasm	34	1.25%
Cholelithiasis / cholecystitis	18	0.66%
Pregnancy with urinary tract infection	37	1.36%
Senile urethritis (females)	05	0.18%
Prolapsed piles	23	0.85%
Kocks abdomen	13	0.48%
Sexually transmitted diseases (gonorrhoea, balanitis, glans ulcer etc)	121	4.47%

Table-III. In door surgical patients managed conservatively (n-2633)

observed diseases pattern was some different from tertiary care hospitals. We agree with Alam SN et al¹¹ that diseases vary with cities, from one area to other area, due to social circumstances and ethnic background due to genetic factors. In our series urinary tract disease (35.17%) were the most prominent cause of admission followed by alimentary tract diseases (26.6%), soft tissue infections 26.9% (546), trauma 20.01% (932), superficial lumps 18.13% (367), breast diseases 7.9%(63). While Shamim M et al¹² reported alimentary tract diseases

(29.1%) most prominent cause of admission followed by urinary tract diseases (21.4%), hernia 15.6%, superficial lumps 12%, hepato-biliary pancreatic diseases 9.1%, and breast diseases 4.2%. These differences in our study and Shamim M et al results favor the statement of Breena R et al¹³ that little is known about regional variations in the epidemiology of surgical diseases, which is bound to vary in different areas.

In a report from the American Board of Surgery, the

average number of procedures performed by general surgeons were: abdomen (hepato-biliary-pancreatic + hernias) 26%, alimentary tract 16%, breast 14%, endoscopy 13%, skin/soft tissue infection 12% and vascular 10%¹⁴. In our study the most common operative procedure performed was skin/soft tissue infections (abscesses) 26.9% and not reported earlier in literature. The reason observed that 90% population poor and uncivilized with very poor personal hygiene, and due to shortage of water people have no bath or change of clothes for 4- 7 days or even for months in lower casts (gypsies). Commonly in hot season Dirty skin and clothes with sweat favors skin infections and no early medication promote soft tissue infection leads huge abscesses of skull, axilla, groin, Perianal ,scrotal and limbs.

Alam SN et al¹¹ and Sheikh et al¹⁵ from Karachi inguinal hernia was 1st and most common elective (15.5%) and acute appendicitis (11.9%) the most common emergency presentation. In our study urinary tract stone surgery (20.2%) was most common elective and appendectomy (12.09%) 2nd most common emergency operation. This difference of results favors the explanation of Robert JW et al¹⁶ that differences in surgery rates for urinary calculi may have reflected regional differences in incidence; in case of bladder stones in children, Sind and Baluchistan, which has high rates, is very hot and arid regions. Our study region Tharparker is also hot and arid and bladder stone in children is endemic and cause 80% of child hood surgery.

Shamim M et al in study of rural setup of Karachi describe pile (6.5%) as 2nd most common and gall stone (6.4%) 3rd most common diseases. Abu-Eshy et al¹⁷ the over all prevalence of gall stone disaes in Saudi Arabia as 11.7%. Cholelithiasis affects approximately 10% of adult population in the United States¹⁸. In our study gall stone disease 0.6% and it not matches with national rural population study or international. The reason is dietary habits, labor work,

and you will not found any fatty lady in rural Thar and any diabetes mellitus, obesity and use of contraception at all. In our study 3rd most common elective operation was hernias 10.7% (94), which are in near line with several international studies¹⁴.

In our study injuries (trauma) comprises of 20% of total admissions most medium to severe type of injuries were 14.9% (303), includes soft tissue repair (n-137), fractures (n-133) and stump formation of amputated fingers/limbs (n-17), other all were minor injuries managed in emergency room and discharged. Alvi R et al⁹ in his study describe the injuries were the most common presentation comprising 36% (n-715) of all surgical interventions. The major surgical injuries were gunshot, blunt trauma, hand injuries and compound fractures. In our study the cause of injuries were road traffic accident (RTA) 48%, fall from trees 25%, assault 10% animal bites or animal horn penetration (camel, donkey, goat, cow) 5%, other 12% mislenous including only three case of gun shot.

Masiira- Mukasa et al¹⁹ showed that over a two year period 73.5% out of 5907 admissions were due to trauma and Alam SN et al showed only 11.2% both in contrast with our results of trauma.

Common operative procedures performed under local anesthesia were trauma 14.9% (n-303), sebaceous cyst excision 12.5% (n-149), therapeutic total circumcisions due to BXO or chronic balanitis (except religious) (118), incision and drainage (106), wound debridement (98), and miscellaneous 22.4%(260) includes lipomas, corn, warts, polyps, cervical lymph node biopsy, umbilical granuloma and teared ear lobule suturing. Alam SN et al reported 1.5% soft tissue tumors and Awojobi²⁰ from rural Nigeria reported external hernia repair 56.1% as the most common procedure under taken followed by excision of superficial lumps 11.5%. Both results are in contrast with our study hernia 14.9% and superficial lump excision collectively 34.9% at our rural set up.

Our important results different from other studies are balanitis xerotica obliterans (BXO) 5.8% (n-118) of total operative procedures. The exact cause is not known but majority uncircumcised population, poor personal hygiene, sexual contact with animals and hot climate may be the risk factors. Chronic wound debridement 4.8% (n-98) of operative procedures, the reason is non availability of surgically skilled persons / GPs in primary and secondary care health facilities. 90% traumatic wounds sutured or managed by GPs and MOs gets infected, because of unsterilized techniques. Foreign body (needles n-23) removal from different parts of body and mostly in females, because every female expert of handicrafts work at home traditionally. Reconstruction or suturing of teared ear lobules of adult females 2% (n-42) of surgeries. This is due to cultural trend of wearing of heavy jewelry every time in Tharparker.

Tharparker is belt of pulmonary TB, but extra pulmonary TB is also common. Cervical lymph node biopsy (n-31), psoas abscess (n-13), and Orchidectomy (n-11) majority of the biopsies proved tuberculosis. In children manual reduction of rectal prolapse (34) and umbilical granuloma excision (17) cases. Recurrent diarrhea, malnutrition was found main cause of rectal prolapse in children. Umbilical cord wound infection is very common because 90% deliveries are still at home by Dais with cord clump with knife.

During three year 417 surgical patients were referred to tertiary care hospitals. Most prominent referral were trauma cases 55% including head injury, compound fractures, blunt abdominal (visceral) traumas followed by suspected malignancy cases 25% (oesophagus, tomach, rectum, breast urinary bladder ,prostate), thyroid diseases (goiter), and acute abdomen (20%) with sepsis and suspected duodenal or ileal perforation. This high percentage of referral of acute abdomen patients were due to lack of skilled anesthetics, surgically trained RMOs, intensive care

unit and biochemistry (serum electrolytes) facility at district Tharparker. This is totally in contrast with results of Shamim M et al¹² from rural Karachi where 47 patients referred to tertiary care with not single case of acute abdomen.

In our study mostly surgical cases of advanced form majority of hernia were huge size (figure), huge stones, huge varicose veins, and huge lumps. Our study shows great variations in compare to other studies of rural populations or at district hospitals. Robert JW et al the large variations in some surgical rates among three regions of Pakistan have several possible explanations: differences in the incidence of diseases treated by the operations; variations in physicians and surgeons practices; differences in patient's attitudes; and differences in accessibility. Wennberg and Gittelsohn described this type of variations in six New England states²¹. They have been attributed to physicians uncertainty, differing in diagnostic criteria or to physicians opinions regarding the value of various operations²². Roos and Roos have observed that variations in surgical rates did not correlate with health needs, but did correlate with social, ethnic and economic characteristics of a population and even more with physician practices²³.

CONCLUSIONS

The most common cause of seeking surgical care at back ward rural Tharparker was urinary tract diseases, followed by skin/soft tissue infections, alimentary tract diseases, Trauma superficial lumps and breast diseases.

Presence of surgical specialist at remote and back ward region Tharparker is like light in dark.

New pattern of disease with high incidence and prevalence of endemic bladder stone in children and BXO in adults observed in this particular region of Pakistan.

Main reason of patient referral to tertiary care was

deficient in skill medical and surgical professionals, paramedic staff and medical equipments.

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*Striving for excellence motivates you;
striving for perfection is demoralizing.*

Harriet Braiker