ORIGINAL ARTICLE

Interposition of Omentum, Perivesical Fat, Martious Fat in Management of Lower Urinary Tract Fistula - A Comparative Study

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ABSTRACT

Background: Fistula of genitourinary tract is one of the severe complications of obstetrical & gynecological surgeries. By improvement of obstetrical care, incidence has reduced in west but the major etiological factor for fistula formation in develop world is pelvic surgeries. But in third world, this is one of the major issues related to obstetrical and gynecological procedures. This problem leads to medical issues, social isolation and psychological problems.
Aim: We want to compare the result of simple anatomical repair versus interposition of various tissues omentum, Matrious flap and perivesical fat.
Method: We treated 64 cases of lower urinary tract fistulas after delivery, obstetrical procedures, pelvic surgery, fire arm injuries and road traffic accidents. Among these 64 cases, 54(84.4%) have Vesicovaginal fistulas, 3(4.7%) patients had Vesicovaginal fistulas and rectovaginal fistula while 3(4.7%) have Vesicovaginal fistulas associated with urethrovaginal fistula, 2(3.1%) cases of each Uterovaginal fistula and Cervicovaginal fistula.
Conclusion: Among the Fistulas of lower urinary tract, Vesicovaginal fistula is the commonest. Hysterectomy is one of the leading cause of these fistulas. Interposition of various tissues enhances the success rate and highly effective method of fistula closure.
Keywords: VVF, Urinary tract fistula,

INTRODUCTION

The urogenital fistula of lower urinary tract is a considerable health issue all over the world. The suffers are isolated and emotionally disturbed .In India and Pakistan 70-90% suffers are either abandoned or divorced.[1] At the same time it is a matter of great stress for treating surgeons. Its history is as old as history of mankind .The existence of vesicovaginal fistulas as clinical entity is believed to have been known to physicians of ancient Egypt with examples present in mummies from 2000BC.[2] Females are most commonly suffered from this devastating problem. The major etiological factors in female are obstructed labor, iatrogenic injury to urinary tract during obstetric and gynecological procedures.[3] Other less common reason for urinary fistulas is blunt trauma [4] gunshot injuries, pelvic radiotherapy, and radical pelvic surgeries. The major burden of disease is in 3rd world due to poverty, lack of education, lack of facilities, shortage of resources, and non-availability of qualified staff for obstetrics and gynecology in particular. In developed nation obstetrics fistulas are rare and only 0.8% of hysterectomies had complications like fistula[5].

The first successful repair of urogenital was done by Sims in 1852. The treatment of urinary fistula ranges from conservative management by simple catheterization to surgical repair, including transvaginal, transabdominal laparoscopic and robotic.[5] However there are controversies exist on various points like time of repair early verses delayed and route of repair either transabdominal or transvaginal ,and simple anatomic repair versus interposition of various tissues like omentum , Matrious flap, peritoneum perivesical fat etc.

Interposition of various tissues increases the vascularity as well as lymphatic drainage. At the same time provide support to the repair tissue.[6] We want to compare the result of simple anatomical repair with interposition of omentum, periveical fat and Matrious fat

MTERIALS & METHODS

A comparative study carried out at department of urology post graduate medical institute /Lahore general hospital Lahore to evaluate the results of simple anatomical repair versus interposition of various tissues like omentum, perivesical fat and Matrious flap in management of lower urinary tract fistula. All patients with complaint of per vaginal urinary leakage ,because of iatrogenic , gunshot road traffic accident causing injury to lower genitourinary tract were included in the study

.Patients with history of malignancy and radiotherapy were excluded.

All patients were admitted through OPD / Emergency. Their detailed medical history and physical examination done. Their Hematological investigation carried out. Radiological investigation including ultrasonography and intravenous urography performed in selected cases to see the status of kidney ureter and urinary bladder. Their EUA Cystoscopy, vaginoscopy in all cases and uretrorenoscopy in selected cases done to localize fistula and associated ureteric injuries. After localization of fistula surgery was planned according to site of fistula. Abdomen approach was used in high fistula while transvaginal route was used in low lying fistula.

Abdomen opened through previous incision. Bladder identified and opens transversally. Fistula was identified and foley's catheter was passed in the tract and its balloon was inflated for traction. Circular incision made in the fistulous tract so vagina and bladder wall separated. The rent in vaginal wall closed with vicryl 3/0 and rent in posterior bladder wall closed at right angle to vaginal closure. Bladder closed after putting suprapubic catheter. For those cases, where omentum was planned to interpose between bladder and vaginal wall the peritoneum opened. Omentum was mobilized and brought up to fistulous tract. It was fixed with cat gut to vaginal wall beyond the closed rent of vagina. In selected where perivesical fat interposition was planned after opening the bladder pad of fat from dome mobilized with its intact pedicle brought down to already closed vaginal vault and fixed with it, bladder closed separately and suprapubic catheter passed per operatively. Leakage of urine checked after putting saline. In those cases where transvaginal route used for repair both bladder and vagina separated leaving a small cuff of vaginal wall with bladder so to avoid injury to ureteric orifice. Bladder wall closed. Martious flap with pedicle mobilized from labia majora and brought to fistula site by tunnel and fixed across bladder rent and vaginal wall closed.

RESULTS

We treated 64 cases of lower urinary tract fistula. Age range was 9 to 60 years. Etiologically hysterectomy was major factor responsible for33 (51.6%), followed by c-section 11 (17.2%), c section and hysterectomy was the cause in 7(10.9%) obstructed labor 5(7.8%),one case of obstructed followed by c-section (1.6%) D and C was found in 4(6.3%), firearm injury and road traffic accident 3(4.7%). Vesicovaginal fistula was present in 54(84.4%), vesicovaginal associated with rectovaginal fistula was there in 3(4.7%) cases, Vesicovaginal fistulas with urethrovaginal was found in 3(4.7%) patients, 2 (3.1%) have utroesical fistula, while 2(3.1%) had only cervicovesical fistula. After diagnosing the patients we treated 38(59.4%) of Vesicovaginal fistulas with omentum, 14(21.9%) without omentum, 4(6.3%) with mortious flap, 5(.8%) Vesicovaginal fistulas with perivesical fat, 2(3.1%) of utrovesical fistula repair with omentum and 1(2%) vesicocervical repaired with perivesical fat. There was smooth recovery in 55(85.9%) patients and (14.1%) got settled after additional procedure one in form of simple anatomical repair and 2nd revision repair with omentum second time. In our series one patient had three other had six still other had 8 failed attempts of Vesicovaginal fistulas repair at other places. All of them treated successfully with omentaland martios flap interposition.

Age

		Age of Subject	Diagnosis	Etiology	Treatment	Outcome
N	Valid	64	64	64	64	63
	Missing	0	0	0	0	1
Std. Deviation		10.38551	1.16571	1.70899	1.54271	.33563
Range		51.00	5.00	6.00	6.00	1.00
Minimum		9.00	1.00	1.00	1.00	1.00
Maximum		60.00	6.00	7.00	7.00	2.00

Diagnosis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Vesicovaginal fistulas	54	84.4	84.4	84.4
	Vesicovaginal fistulas +Rectovaginal	3	4.7	4.7	89.1
	Vesicovaginal fistulas+urethrovaginal	3	4.7	4.7	93.8
	Utrovesical	2	3.1	3.1	96.9

	vesico cevix	2	3.1	3.1	100.0
	Total	64	100.0	100.0	

Etiology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hystrectomy	33	51.6	51.6	51.6
	C section	11	17.2	17.2	68.8
	c section and hysterectomy	7	10.9	10.9	79.7
	D and C	4	6.3	6.3	85.9
	Injury(fire arm and RTA)	3	4.7	4.7	90.6
	Obstructed labour	5	7.8	7.8	98.4
	obtructed labourand c section	1	1.6	1.6	100.0
	Total	64	100.0	100.0	

Treatment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Vesicovaginal fistulas repir with omentum placement	38	59.4.	59.7	54.7
	Vesicovaginal fistulas repair without omentum	14	21.9	21.9	76.6
	Vesicovaginal fistulas repair with mortious flap	4	6.3	6.3	82.8
	repair with perivesical fat	5	7.8	7.8	90.6
	utrovesical fistula repair with omentum	2	3.1	3.1	93.8
	vesico cervix with peri vesical fat interposition	1	1.6	1.6	100.0
	Total	64	100.0	100.0	

Outcome

		khFrequency	Percent	Valid Percent	Cumulative Percent
Valid	Complete recovery	55	85.9	87.3	87.3
	required additional	9	14.1	12.7	100.0
	Total	64	100	100.0	
Total		64	100.0		

DISCUSSION

Urinary Fistula is an unpleasant and severely demoralizing injury among women of child bearing age, mainly due to disabling child birth injury or due to gynecological surgery like hysterectomy having iatrogenic injury to lower urinary tract resulting urogenital fistula formation. It has a profound impact on physical and emotional wellbeing of the patients due to continuous soiling and odor.[7] If someone happens to meet these victim, one is profoundly moved by their woefully experience. The females face divorce / separation by their husbands, homeless, urinary incontinence of urine and odour, ashamed of their offensiveness, covered by their family head, vaginal skin excoriation etc. These patients not only suffer emotionally but also physically and represent a big social problem[8].

In our study the age range was 9 to 60 year with mean of 35.74 years having standard deviation of 10.98 year[8]. reported similar figures regarding age range from12 to 50 years. In other study of [6] age range was 18-50 years but in this study majority of fistulas were obstetrical fistulas.

The urogenital fistula is most commonly seen in 3rd world as compared to developed nations. In developed world major reason for fistula is because of hysterectomies and in subcontinent and africa obstetrical fistulas more prevalent. As facilities are expending gradually toward for off places and

awareness increasing no of obstetrical is reducing but at same iatrogenic gynecological fistulas are increasing. So we need to put more efforts for enhancing the training standards of health professional to overcome this devastating problem.

In our study major etiology of lower tract urogenital fistula was hysterectomy in 51.6%, c section 17.2 , c section hysterectomy in 10.9%, obstructed labour in 7.8% D C in 6.3% ,fire arm injury 3.12% ,road traffic accident in 1.56% and obstructed labour c section in 1.56%[9,10] reported 50% fistula after hysterectomy, while[11] have different experience with higher no of obstatrical fistula84% and [7] reported 80% after hystrectomy. According to [12] the incidence after simple hysterectomy is 0.5% and 10% after radical hysterectomy.

In present study 84.4% has Vesicovaginal fistulas, 4.7% each rectovaginal and urethovaginal associated with Vesicovaginal fistulas while 3.1% of each had utrovesical and vesicocervical fistula.[8] reported the incidence of vesicovaginal fistulas 62.44% and urethovaginal of 25%. The reason of this difference could be because of majority of their patients had obstetrical fistula.[12] experienced 3 times higher Vesicovaginal fistulas as compared to urethrovaginal fistula. [13] reported the incidence of vesicovaginal fistulas 56%, Vesicouterine 25% and Vesicocervical 19%. In these both studies, majority of patients have obstetrical fistulas.[9] reported the incidence of vesicovaginal fistulas 78% and urethrovaginal fistula 22%. Our results regarding vesicovaginal fistulas are similar to [14] and [11]

However majority of our patients (86%) developed fistula post-surgical as compared to patients (42%) developing fistula following obstructed labor.[2]

Sims was first person who successfully closed Vesicovaginal fistulas in 1852. Urogenital fistulas can be repaired successfully by trans-vaginal and trans-abdominal route. Ideally infra-trigonal and urethra-vaginal are repaired trans-vaginally and supratrigonal , fistula associated with ureteric injuries approached via abdominal route. In our series we

Regarding interposition of various tissues, there are different opinions but majority of the researches support this technique. According to [15] there is no role of interposition of tissue in the success of fistula closure but lot of other studies reveal the success rate even up to 100% by interposition of various tissue between vagina and bladder.[11] reported 80% success rate while Jeremy reported favorable successful fistula closure by interposition of omentum.[16] described the closure rate 100% by omentum.[17] favored this technique even in complex urinary fistula. In our study, out of 64 patients, 14 patients (23.33%) repaired via abdominal route without tissue interposition and there failure rate was 35.71% Out of these 5 patients, One had successful simple anatomical repair in 2nd attempt while other three patients who had 2nd, 3rd & 6th time unsuccessful repair at other places, successfully closed by interposition of omentum tissue and 5th patient who had 7th attempts of unsuccessful repair closed successfully by transvaginal route and Matrious fat pad placement. In remaining 40 patients, we able to close fistula by placement of omentum in 39 patients and the remaining one patient who was having 5x7 cm fistula with short stature and small size pelvis inadequate length of omentum, there was leakage of urine on 10th day. After 3 month time, she was evaluated and found a very small fistula which was closed transvaginally by placement of Matrious pad of fat. In other 4 patients, who were primarily managed by transvaginal route, success rate of 100% by placement of martious pad of fat. In 6 cases, we place perivasical fat with success rate of 100%. Similar success has been achieved by RB Singh (18) with perivesical fat.

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