Original Article

EFFECTS OF INGUINAL HERNIA REPAIR ON MALE FERTILITY

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ABSTRACT:

OBJECTIVE:

To determine the frequency of male infertility in patients undergoing inguinal hernia repair.

SUMMARY BACKGROUND DATA:

In fertility after inguinal hernia repair is not a documented complication so no definite background data is available.

SETTING:

Surgical floor, Allied Hospital, Faisalabad.

METHODS:

Patients undergoing unilateral, primary inguinal hernia repair electively with the Lichtenstein technique were included in study after determining their preoperative fertility status in terms of sperm motility and sperm concentrations which were again checked six and twelve weeks post operatively. Patients with obstructed, strangulated or recurrent hernia, patients with immunosuppressive disease or a debilitating disease like chronic liver, renal or cardiac impairment were excluded. Age, side of hernia, type, size, reducibility and operative findings were recorded. Male infertility was defined according to WHO criteria. Semen analysis was carried out on the day of operation and 6 and 12 weeks post operatively. Result were recorded and analyzed.

RESULTS:

Between April 25th 2011 and October 2011, a total of 219 patients were included in study. None of the patients developed any urinary tract infection, trauma to urinary tract and significant wound infection post operatively. Out of219 patients 155 had right sided and 64 patients had left sided hernias, 60 were direct and 159 were indirect clinically. 119 patients had complete and 100 patients had incomplete hernias, 107 hernias were reducable and 112 were Irreducible. When operated 14 patients had direct and indirect both hernias. Hernial sac dissection was easy in 155 cases and was adherent in 114. Two scrotal hematomas, 3 cases of wound seroma formation and 3 cases of urinary retention were noticed.

CONCLUSIONS:

We conclude that none of the patients developed infertility till 12 weeks post operatively.

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KEYWORDS:

Inguinal hernia, lichtenstein's repair, postoperative wound infection, male infertility, sperm motility, sperm concentration.

INTRODUCTION:

Inguinal hernia is a common surgical problem affecting approximately 5-10% of the population and 3-4% of the male population (1,2) the ideal treatment of inguinal hernia repair to obtain best results is still being investigated.Varion surgical techniques have been developed form time to time aiming at decreased complication and recurrence rates. Currently lichtenstein,s repair isproved to be most safe and effective with low complications and recurrence rate (3,4). The commonly Known and documented complication of inguinal hernia repair include wound seroma, haematoma , abscess formation ,urinary retention(5) chromic grain pain or numbness and recurrence. But the much serious complications which becomes evident after years is vasal obstruction, due to mesh invasion and mesh evoked fibrosis causing infertility in males (6) In a study of 8500 infertile males 565 i.e.6.65% has undergone inguinal hernia repair at some age of life.(7) Case studies also showed ischemic orchitis necessitating orchiectomy soon after inguinal hernia repair.(8) In another study, Doppler ultrasound was used to assess the testicular volume and blood flow pre and post operatively. They found improved blood flow as hernial contents were compressing the blood supply.(I) Very little work has been done on this issue inour set up. This study was designed to document the effects of inguinal hernia repair on male fertility in terms of sperm concentration and sperm motility pre and portoperilaialy.

MATERIALS AND METHODS:

Study Design: Cross- sectional study.
Setting:
surgical floor allied hospital and Independent Medical College Faisalabad.

Duration of study:
1 year.Dec.2012 to Dee 2013.

Sampling technique:
Consecutive non probability.

Inclusion criteria:
All the patients between 20-50 years of age presenting with Direct or indirect inguinal hernia of any clinical variety.

Excursion criteria: following patients were excluded from study.

- Bilateral hernia.
- Recurrent, obstructed or strangulated hernias.
- Patents with advance systemic disease like COPD etc.
- Age less than 20 years and more than 50yrs.

Table 1:-
Inguinal hernia presentation

Type	Frequency	Percent
Complete	100	45.7
Incomplete	119	54.3
Direct	60	27.4
Indirect	159	72.6
Reducible	107	48.9
In reducible	112	51.1

Table 2:-

	N	Maximum	Minimum	Mean	SD
Sperm motility of	219	50	78	63.10	5.64
8.6 week post of	219	48	71	61.48	5.21
12 week post of	219	52	76	61.10	4.9

Table 3:-

	N	Minimum	Maximum	Mean	SD
Sperm cone. pre of	219	30	61	44.72	5.43
6 week post of	219	30	61	43.85	4.99
12 week post of	219	29	60	43.20	5.07

Data collection procedures:

Patents were selected from outdoor admissions in surgical out patients department both in allied Hospital and independent medical college hospital. Patients willing to participate in the study were enrolled. Detailed history and clinical examination was carried out in word.

Diagnosis of hernia was confirmed on the presence of lump or swelling in the grain with positive expansile cough impulse Routine investigations for fitness for anesthesia and surgery were curried out.

Semen analysis was carried out in all the patients on the morning of operation day. Preoperative antibiotic was give to all the patients and operations were conducted by senior registrar or above level to minimize the discrepancy of surgical expertise. Standard Lichtenstein repair was performed in all. Patients were discharged on first post operations day expect those who developed complications like hematomas. Patients following discharge were kept in contact and were called for next two visits on 6 weeks and 12 weeks post operatively. Data collected was analyzed using SPSS version 12:0.Descriptive statistics were calculated for all variables. Mean and standard deviation were calculated for quantitative variable like age, sperm concentration and sperm motility.

RESULTS:

Total of219 patients were included in the study. Mean age of patients was 35.23 (range 20-49 years). Rights sided inguinal here was seen in 155 (70.8%) and left sided in 64 (29.2%) patients. None of patients with bilateral inguinal hernia was included is this study. Completes hernia was present in 100 (45.7%) patients,Clinically159(72.6%) patients had indirect inguinal hernia and 06 (27.4%) had direct inguinal here.

There was no signification difference with respect to the duration of surgery and level of surgeonperforming the operations. No adverse reaction to drugs used preoperatively neither any serious anesthetic complication occurred. Semen analysis taken as standard for labeling patients infertile were,sperm motility taken as percentage of mobile sperms and sperm concentration in millions per ml of the ejaculate.

The minimum sperm motility pre operatively recorded was 50% and maximum was 78% with a mean value of 63.1 0 and calculated standard deviation of 5.64. Six week post operational, minimum value observed was 48% and maximum value 71 % (mean :61.48%) with standard deviation of 5.21. After twelve weeks of surgery minimum sperm motility value was 52% while maximum 76% (mean 61.10) and standard deviation of 4.90 (table 2). In case of sperm concentration value are given in table 3.

In short none of the patients developed significant fall in the value of sperm motility and concentration till twelve weeks post operationally to label one as infertile.

DISCUSSION:

The inguinal hernia is quite a common presentation in male. The life time rate of inguinal hernia is 25% in males and 21 % in female9. The risk of inguinal hernia increase with age and the incidence is around 50% by the age of75.10 Almost all surgical procedures in adults involve the use of a synthetic mesh to cover the defect. However mash is not recommended for use in pediatric inguinal hernia due to concerns about the risk of inflamatory reaction, damage to vas deferens and/or testis and infertility.l l- Inguinal hernia repairs requires of highly specialized skills. A part from other complications infertility is most important because it is generally forgotten when taking informed consent for elective hernia repair and if it develops after words it is difficult to treat and may result in medico logical implications as well. Peter and Paul F Ridway suggest that actually it is the presence of hernia contents that compresses upon the testicles blood supply and in their study they proved that the hernia repair actually improves testicles perfusion and therefore sexual function. 1 oner and mehmat in 2006 described the psychological impact of huge hernias and showed that the scrotal hernia repair caused a positive impact on sexual function after surgicay.12 Helen and Nordic in their research have recently shown that there is an increased risk of infertility when mesh is used on either side in bilateral inguinal hernia but the cumulative incidence is less than 1 % which is statistically not significant. 13 On the our hand when a large population of infertile males were investigated 6.65% of use patients gave history of inguinal hernia repair during sometime in their life. The exact cause of infertility is fibrotic occlusion or preoperative damage due to mishandling and

injudicious use of electrocautry is not yet clear. 14 GE wantz in his study has proven that testicular atrophy developed only in complete inguinal hernia where the sac was complete dissected from the cord.15

In our study only sperm motility and sperm concentration were taken as infertility parameters and pre and post operative values showed no value so decreased to be labeled as infertile. NO patient under went bilateral hernia repair at the same time to control the bias associated with operating on both sides. The reason for not developing infertility after hernioplasty may be the fact that all patients underwent hernia repair on one side and also with normal fertility parameters previously. If any patient had developed decreased sperm count and concentration from the operative side testis that might have been overcome by the already normal side .But the long post operative follow required to see the effects of diseases formations to cause occlusion of the vas deference.

CONCLUSION:

We should practice evidence based medicine and one should have close watch on the long term follow up results.

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