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ORIGINAL ARTICLE

Effectiveness of Inguinal Hernioplasty by Lichtenstein Technique in a Periphery Hospital

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ABSTRACT

Aim: Study was carried out to see the effectiveness of the inguinal hernioplasty by Lichtenstein technique in our hospital which is located in the periphery.

Methods: This prospective study was conducted from Aug 2017 to Oct 2021. All male patients older than 18 years with primary inguinal hernia were included in the study by convenient sampling technique. Patients with strangulated, obstructed and recurrent inguinal hernia and patients with obstructive urinary symptoms were excluded from the study. Written consent was taken. Patients were operated under suitable anesthesia (General/Spinal). Standard open inguinal mesh hernioplasty was done by Lichtenstein technique. In order to detect long term outcome of the procedure, a planned scheduled follow-up of the operated cases were done in the OPD. Demographic data along with short & late term complications were recorded and analyzed with Excel 2013.

Results: A total of 295 inguinal mesh hernioplasty were done. Right sided hernia was seen in 60.34%, left side hernia was seen 34.58% and bilateral hernia was seen in 5.08% of the patients. Indirect hernia was observed in 65.08%, direct hernia was seen in 32.88% and pantaloon hernia was seen in 2.03%. Hepatitis C virus infection was found in 9.83% of the patients and hepatitis B virus was found in 2.71%. Scrotal swelling was observed in 1.36% of the patients which was treated conservatively, seroma was observed in 1.02% of the patients which was absorbed spontaneously and no intervention was done. Hematoma was seen in one patient having hepatitis C virus infection. During follow-up of one year chronic groin pain was seen in 2.37% patients which resolved conservatively. In long term follow-up no infection, chronic groin pain and recurrence was reported.

Conclusion: Effectiveness of open inguinal mesh hernioplasty by Lichtenstein technique is far superior to other techniques. Lichtenstein technique is safe, easy to learn and it does not require any special equipments. We strongly recommend this technique in periphery hospital where laparoscopic facilities are still not available.

Keywords: Lichtenstein repair, Shouldice technique, Inguinal mesh hernioplasty.

INTRODUCTION

Inguinal hernia is a protrusion of abdominal contents through a defect in inguinal canal [1]. More than 75% of the abdominal hernias develop in the groin [2, 3]. Life time risk of developing inguinal hernia is 27% in males and 3% in females [2,4]. Worldwide more than 20 million inguinal hernias are repaired annually [5] making it the most commonly performed procedure in the general surgery [6]. History of hernia surgery dates back to ancient times perhaps the history of hernia surgery is the history of the surgery [7]. Since the ear of Bassini (1887) and Shouldice (1930) repair, to date more than 70 different types of tissue based operative techniques are described in the literature [8,9]. Tissue based repair is associated with high rate of recurrence 20-30% [10, 11]. Rate of recurrence may vary according to the type of repair [12, 13]. In 1970s Lichtenstein introduced tension free mesh hernioplasty with a very low recurrence rate [14, 15]. Mesh hernioplasty is not commonly performed procedure in periphery hospital due to risk of infection especially in our remote area. So, this study was conducted to see the effectiveness of inguinal hernioplasty by Lichtenstein technique in our hospital which is located in the periphery.

MATERIAL & METHODS

This prospective study was conducted from Aug 2017 to Oct 2021 at Pak Red Crescent Teaching hospital which is affiliated with Pak Red Crescent Medical College, Dina Nath. Ethical approval was taken. All male patients older than 18 years presented in surgery department with primary inguinal hernia were included in the study by convenient sampling technique. Patients less than 18 years old, female patients and patients presented with strangulated, obstructed, & recurrent inguinal hernia along with patients having obstructive urinary symptoms were excluded from the study. Written informed consent was obtained. Routine preoperative tests; CBC, viral markers, Chest x-rays were done. Anesthesia fitness were taken. Preoperative prophylactic antibiotic was given before the induction of the anesthesia. Standard open inguinal mesh hernioplasty by Lichtenstein technique was used in all the cases. Appropriate anesthesia (general / spinal) was given. After draping skin crease incision was made and subcutaneous tissue was dissected with electrocautery. External oblique aponeurosis was incised carefully not to injure the ilioinguinal nerve. Spermatic cord was exposed and lifted. In case of indirect hernial sac, the sac was dissected, opened, contents were reduced and sac ligated at the base with vicryl 2-0 under direct vision. Direct hernia sac was plicated with vicryl 2-0. A polypropylene mesh of 6 x 11 cm was tailored to cover the whole posterior wall of the canal. Mesh was fixed with prolene 3-0 interrupted sutures medially to pubic tubercle, inferiorly to inguinal ligament and with conjoint tendon. At the level of deep ring mesh was slitted, two tails were created and was sutured over one another around the cord. No drain was used, external oblique aponeurosis was closed with continuous vicryl 2-0 suture. Subcutaneous tissue was closed with interrupted vicryl 3-0 suture and skin was reapproximated with subcuticular prolene 3-0 suture. Mepore dressing was applied. In order to detect long term outcome of the procedure, a planned scheduled follow-up of the operated cases were done in the OPD after, one week, one month, six months, one and two years. Demographic data along with short/late term complications were recoded and analyzed with Excel 2013.

RESULTS

A total of 295 inguinal mesh hernioplastiesy were done in male patients. Spinal anesthesia was given in 253 (85.76%) patients and general anesthesia was given in 42 (14.24%) patients. Mean age of the patient was 43.33±16 years, median age was 45, and mode was 50. Minimum age of the patient was 18 years old and maximum age of the patient was 87 years. Side of hernia and type of hernia is given in table no. 01 and 02 respectively.

Table 01. Side of the hernia.

Side	Number of Patient	Percentage
Right	178	60.34
Left	102	34.58
Bilateral	15	5.08
Total	295	100.00

Table 02. Type of the hernia.

Type of Hernia	Number of Patient	Percentage
Indirect	192	65.08
Direct	97	32.88
Pantaloon	6	2.03
Total	295	100.00

Hepatitis C virus was found in 29 (9.83%) patients and hepatitis B virus was found in 08 (2.71%) patients. Postoperative complication is given in table no. 03.

Table 03. Complication

	Number of Patient	Percentage
Wound Infection	2	0.68
Seroma	3	1.02
Hematoma	1	0.34
Scrotal Swelling	4	1.36

Scrotal swelling was observed in 04 patients with a very large hernia and it was treated with anti-inflammatory drugs and scrotal elevation. Seroma got absorbed spontaneously without any intervention. Hematoma was seen in one patient having hepatitis C virus infection. Hematoma was drained under anesthesia wound was packed and delayed primary closure was done fortunately mesh was not infected. During follow-up of a one year chronic groin pain was seen in 07 (2.37%) patients which settled with conservative management. In long term follow-up no infection, chronic groin pain and recurrence was reported.

DISCUSSION

Inguinal hernia is very common in elderly males [16, 17], and its risk increase with advancing age [18]. Every inguinal hernia should be repaired in order to prevent risk of complications like strangulation, obstruction and incarceration. Right side inguinal hernia is more common [19] than left side because of late descend of the right testes [20]. In our study we also found right side predominance in 60.34%, left sided hernia in 34.58% and bilateral hernia was found in 5.08% of the patients which is comparable with international data [19, 21].

Post-operative mesh infection is always a concern whenever foreign body like mesh is implanted in the body. It is more common in obese, diabetic and immunocompromised patients [22]. In the past, reported average incidence of mesh hernioplasty was very high i.e., 5.8% [23], but recent studies show a considerable low incidence ranging from 0.57 to 0.02% [24, 25]. Rate of wound infection in our study was 0.68% which is comparable to international data.

During dissection of complete inguinal hernia there is a risk of scrotal swelling postoperatively and its reported incidence varies from 0.9 to 1.5% [26]. It is usually transient and resolves with scrotal elevation. In order to prevent scrotal swelling, one should avoid excessive dissection of the distal portion of the sac beyond the pubic tubercle [27]. We found scrotal swelling in 1.36% of the cases with giant inguinal hernia which is acceptable according to the literature [26].

Seroma formation occurs due to excessive inflammatory response towards foreign body (mesh). Minimum tissue dissection and avoid dead space formation may reduce seroma formation. Most of the time seroma is absorbed spontaneously by body tissues within few days [28]. Large collection of seroma may require aspiration. In our study seroma was reported in 1.02% of the cases.

Persistent chronic pain after mesh hernioplasty can cause significant morbidity [29], it is defined as pain or discomfort felt for three or more than three months. Its published incidence is 4-6% after open Lichtenstein repair [30]. Meticulous dissection, preservation of the iliohypogastric / ilioinguinal nerve and avoiding nerve entrapment during fixation of mesh can reduce the chance of persistent chronic pain. In present study we had 2.37% of the cases which had chronic pain which is well below the reported incidence.

Testicular complication of inguinal mesh hernioplasty is quite rare but have grave consequences. It includes testicular hypoperfusion, infarct, dysfunction and atrophy [31]. This can be prevented by avoiding extensive dissection of the distal hernial sac beyond pubic tubercle, delivery of the testis in to the inguinal canal and simultaneous scrotal surgery [32]. No testicular complication was seen in our study probably due to meticulous dissection and careful handling of the distal sac.

Ultimate goal of the mesh hernioplasty is to prevent recurrence. Many studies has taken recurrence as a criterion for the success of a particular technique [32]. Lichtenstein technique has a very low recurrence rate of 0.77% [33] perhaps this is one of the reason that, this technique has been accepted worldwide and now it has become a gold standard technique. In our study to date we did not have any recurrence.

CONCLUSION

Effectiveness of open inguinal mesh hernioplasty by Lichtenstein technique in terms of recurrence is far superior to other techniques. Lichtenstein technique is safe, easy to learn and it does not require any special equipments. Current study has shown encouraging results with no recurrence by this technique in two years follow-up. We strongly recommend this open inguinal mesh hernioplasty by Lichtenstein technique in periphery hospitals where laparoscopic facilities are still not available.

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