ORIGINAL ARTICLE

FREQUENCY OF WOUND INFECTION IN INGUINAL HERNIORRAPHY WITH MESH REPAIR

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ABSTRACT

Background: Inguinal hernia is a common surgical problem. Mesh repair is considered as the best procedure for inguinal hernia repair. There is increased chance of wound infection using mesh. Objective of this study was to determine the frequency of surgical site infection in mesh repair for inguinal hernia in our setup.

Material & Methods: This descriptive study was conducted in Surgical Unit, DHQ Teaching Hospital, D.I.Khan, Pakistan from January 2011 to January 2013. A total of 120 male patients above the age of 30 year were included. Patients with co-morbid conditions or those presented as strangulated hernia were excluded. A proforma designed for study, was used for data collection. Antibiotic prophylaxis was given in the form of 1 gram of Ceftriaxone 15 minutes prior to induction of anesthesia. Spinal anesthesia was given in 96 (80%) cases while 24(20%) were operated under general anesthesia. The mesh used was Polypropylene (Prolene). Patients were followed for 6 months to determine the incidence of wound infection. Data was analyzed using the SPSS version 13.0.

Results: A total of 120 male patients were included in the study, with mean age of 48.26$\pm$8.3 years and range of 30-80 years. The hernias on right side were more common 92(76.66%) and 75(62.5%) were indirect. Out of 120 cases, 85(70.83%) patients were hospitalized for 24 hours, 26(21.66%) patients were retained for 48 hours, while 9(7.5%) patients had prolonged hospital stay due to complications like haematoma, seroma and wound infection. Frequency of wound infection was found in 6(5%) patients. All patients had only superficial wound infection and were treated by giving intravenous antibiotics according to the culture and sensitivity report, drainage and local wound care. No patient needed mesh removal for control of infection.

Conclusion: Mesh repair is simple, safe and effective procedure. Frequency of wound infection in mesh repair is acceptably lower with good antibiotic cover.

KEY WORDS: Inguinal hernia; Herniorraphy; Surgical mesh; Wound infection.

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INTRODUCTION

Hernia is a major health care problem requiring surgical intervention. It accounts for 10-15% of all the surgical procedures. Inguinal hernia is the commonest one accounting for 75-80% of the hernias.[1-4] Patients presenting with inguinal hernia often have minimal symptoms and are treated mostly as elective cases, with exception of irreducible or obstructed hernia. The aim of hernia repair is to reduce the contents and restoration of defect. Various surgical techniques like Bassini, Halsted, Mcvay and Shouldice were in common practice in the last century, but with the introduction of mono filament knitted meshes, mesh repair has become the most favored procedure.[5,6] Polypropylene (Prolene) is mostly used mesh, as it is handled easily.[7] With the use of mesh, the recurrence rate of hernia has been brought down from alarming 15% to less than 1%.[8]

Wound infection after the use of mesh repair is one of the potential complication, which can be a point of concern for the surgeons, especially working with limited facilities.[9] With the placement of mesh there is increased chance of getting infection as mesh can provide a good medium for bacterial colonization and proliferation. The rate of infection is influenced considerably by underlying co-morbidity and seem to be increased in patients with diabetes, immunosuppression, obesity and co-existing complications like seroma or hematoma at wound site. There is also increase in wound infection after using microporous and multifilament meshes as they provide better stage for colonization of bacteria. The usual organisms associated with cases of

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mesh infection are Staphylococcus spp. especially Staphylococcus aureus. Other organism involved in wound infection are streptococci, entrobacteriaceae, peptostreptococci and rarely candida or mycobactrium especially in immuno-compromised patients. Patients usually present with symptom and signs of acute infection like pain, redness, tenderness, swelling and increased local temperature around the wound, which is followed by discharge from the wound. There may be systemic manifestations such as fever, malaise, chills and rigors. In some cases it manifests as chronic discharging sinus or even intra-abdominal abscesses. Mesh related wound infection can be prevented by the use of perioperative intravenous antibiotics or by the use of meshes containing embedded antimicrobial agents which prevent bacterial adhesion and colonization. Anti-microbial containing collagen tampons can also be placed in front of meshes to reduce the rate of infection in patients with diabetes or obesity.[8,9]

The objective of this study was to determine the frequency of surgical site infection in mesh repair for inguinal hernia in our setup.

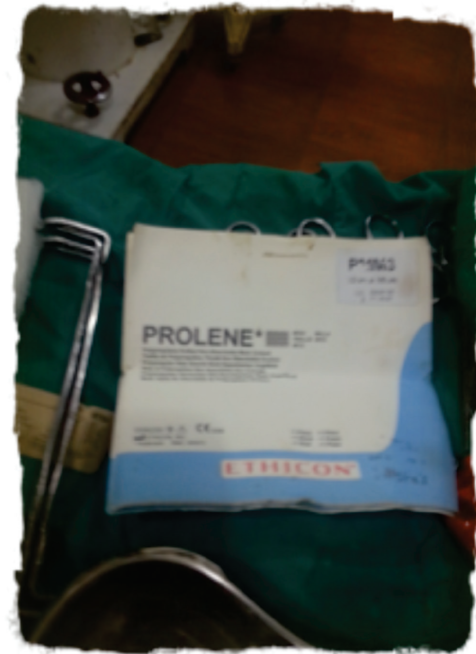

Figure 1: Prolene mesh used in herniorrhaphy.

MATERIAL AND METHODS

This descriptive study was conducted in Surgical Unit, DHQ Teaching Hospital, D.I.Khan, Pakistan from January 2011 to January 2013.

A total of 120 male patients above the age of 30 year were included. Patients with co-morbid conditions and those with strangulated hernias were excluded. A proforma designed for study, was used for data collection. Antibiotic prophylaxis was given in the form of 1 gram of Ceftriaxone 15 mints prior to induction of anesthesia. Spinal anesthesia was given in 96 (80%) while 24 (20%) were operated under general anesthesia. The mesh used was Polypropylene (Prolene). Patients were followed for 6 months to determine the incidence of wound infection. Data was analyzed using the SPSS version 13.0.

RESULTS

A total of 120 male patients were included in the study. The mean age of patients was 48.26$\pm$8.33 years with a rage of 30-80 years.

The hernia on right side was more common i.e. right 92 (76.66%) and left 28 (23.34%). Out of which 75 (62.5%) were indirect and 45 (37.5%) were direct.

Out of 120 cases, 85 (70.83%) patients were hospitalized for 24 hours, 26 (21.66%) patients were retained for 48 hours, while 9 (7.5%) patients had prolonged hospital stay due to complications like haematoma, seroma and wound infection.

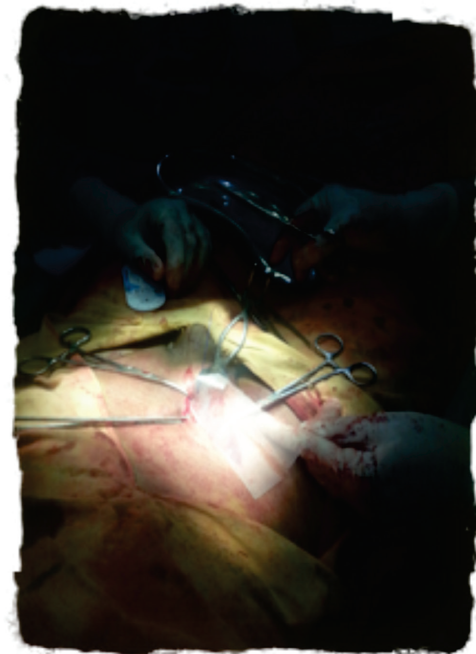

Figure 2: Placement of prolene mesh during inguinal herniorrhaphy.

Frequency of wound infection was found in 6 (5%) patients following mesh repair. All patients had only superficial wound infection. These patients were treated by giving Intravenous antibiotics according to culture and sensitivity report, drainage and local wound care. No patient in our study needed mesh removal for control of infection.

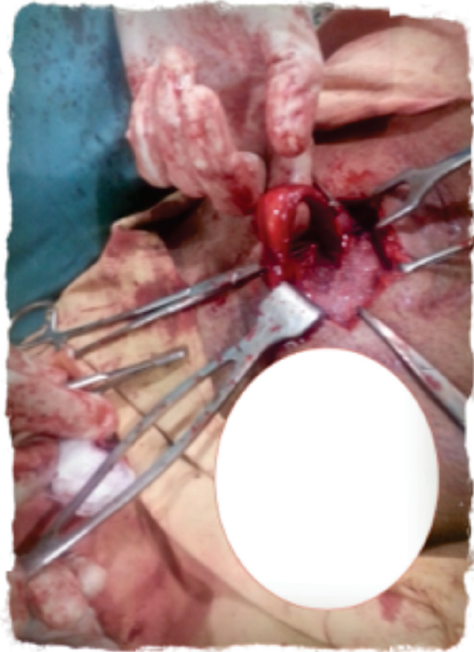

Figure 3: Implanted mesh prior to closure of external oblique during inguinal herniorrhaphy.

DISCUSSION

Inguinal hernia is a common problem and hernia repair is the most commonly performed surgical procedures. It has been estimated that over 20 million inguinal hernia repair are carried out worldwide.[10-11]

We conducted this study in which prolene mesh was used for inguinal herniorrhaphy and infection rate was observed in 5% patients with the follow-up of six months.

The wound infection in our study was comparable to most of the local and some international studies.[12-23]

Our results were similar to the results of a local study on 100 patients by Kashif et al[15], who reported the rate of wound infection as 6%.

Osuigwe et al[16] conducted a study in Subsaharan Africa (with greater risk of post-operative wound infection) in which wound infection was noted in 5% of cases. Similarly in studies conducted by Petsersen et al[17] and Cobb et al.[18] the wound infection rate after herniorapphy was 7% and 8% respectively. Both these studies were conducted on only complex recurrent/ incisionnal hernias.

The results of a local study are contradictory to ours in which Farooq et al[19] reported wound infection rate of 2.4% in 465 cases. They used prolene darn (hand woven mesh). Furthermore this study was conducted in military hospital with probably better aseptic conditions in theater and wards.

CONCLUSION

Mesh repair is simple safe and effective procedure. Frequency of wound infection in mesh repair is acceptably lower with good antibiotic cover.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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None declared.