

Original article:

Post operative mesh infection : Is it a problem ? An experience with 241 cases of Lichtenstein prolene meshoplasty in inguinal hernias

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Abstract

Background & Introduction -Introduction of synthetic mesh was a landmark breakthrough in the management of hernia repair and has significantly reduced recurrence rates. But in addition to the benefits, some more problems have come in picture major being “mesh infection”. Prolene mesh has shown promise when used in planned inguinal hernia repair. A slight breach in asepsis can lead to bacterial proliferation giving rise to chronic discharging sinus and sepsis. Treatment of infected mesh is possible by local debridement, irrigation, mesh removal and systemic antibiotic culminating in increase morbidity.⁽¹⁾

Methodology: During period of one year (January 2014 to January 2015) we have studied (prospective) 241 cases of Lichtenstein inguinal repair for inguinal hernia. 240 cases were male and one patient was female. Age group involved was from 20 to 60 years of age. 124 cases were direct and 117 cases were indirect inguinal hernia. All were subjected to Lichtenstein inguinal hernioplasty using prolene mesh. Post-operative superficial wound infection was found in 15 cases. Deep seated infection with involvement of mesh was found in 5 cases. Mesh was extracted in one case. Pus was found in one case. Staphylococcus aureus was isolated in one. 4 cases were managed conservatively and responded well. Recurrence was found in no cases during one year of follow-up.

Conclusion: So we are in opinion that post-op prolene mesh infection with Lichtenstein repair is not a problem, if proper aseptic technique used during surgery. Even after infection it can be handled with local dressing and antibiotics.

Keywords : Mesh infection, Inguinal hernioplasty (Lichtenstein), Staphylococcus aureus

Introduction

The use of synthetic mesh repair of hernias has reduced recurrence rates significantly. Unfortunately the use of synthetic mesh can be complicated by infection despite of aseptic technique and use of perioperative prophylactic antibiotics. When this complication occurs, the surgeon and the patient are faced with difficult situation. The exact incidence of problem is understood poorly because of lack of

standardized definition and reporting. Literature reported as high as 10% infection rate following hernia repair with polytetrafluoroethylene (PTFE) mesh.⁽²⁾ With prolene mesh, the infection is seen in 1 to 7%.⁽³⁾ It is difficult to say infection is endogenous or exogenous.⁽⁴⁾ In this prospective study, we want to highlight the importance of infection in 241 cases of Lichtenstein hernia repair of Inguinal hernias.

Material and Method

Between January 2014 and January 2015, 241 cases of inguinal hernia underwent Lichtenstein prolene hernioplasty. 240 cases were male and one was female. The age group involved were from 20 to 60 years of age. More number of patients were in age group 30 to 40 years. Direct hernia was present in 124 patients and indirect hernia was present in 117 number of patients. There were 3 cases of sliding hernia. In one female patient, it was an indirect hernia. All patients were subjected to modified

Lichtenstein prolene hernioplasty under general anaesthesia /spinal anaesthesia. No one undergone surgery under local anaesthesia. Post-op prophylactic antibiotic given in all patients. Antibiotics used were amoxicilline with clavulanic acid. The median operative time was 45 minute (range 24-56 minute). All cases were operated by trained and qualified surgeons except, in sliding hernia cases who were operated by professor of surgery. All cases were admitted by surgery trainees (residents). Post-op followup was 1month and 6 month after surgery.

Table 1- Characteristics of patients

Male	240
Female	1
Total number of patients	241
Age group	20 – 60 years
Most common affected age group	30 – 40 years
Hospital stay in non infected cases	7-10 days
Hospital stay in infected cases	12 – 18 days

Table 2- Distribution of cases

Types of hernia	Number of patients
Direct hernia	124
Indirect hernia	117

Table 3- Post-op wound infection

Number of infected case	20
Superficial infection without involvement of mesh	15
Deep infection with involvement of mesh	5

Mesh was extracted in one case.

Observations

Out of total 241 cases of inguinal hernia operated 221 cases were discharged from 7th to 10th post-op day after removal of stitches.

20 cases got initial pain and swelling at operated site for which discharging from hospital was delayed. 15 had superficial surgical infection for which appropriate antibiotic cover was given after culture and antibiotic sensitivity test. They responded well

and discharged from the hospital on 12-18 days after surgery.

Five patients had deep seated infection from which there was serous discharge. One patient had pus discharge. Culture sensitivity test revealed growth of staphylococcus aureus sensitive to Imipenam, Meropenam, Piperacilline, Tazobactum, Ampicilline, Penicilline, Cefoperazone, Cefipime, Cefuroxime, Ciprofloxacin. All the infected cases are subjected to injectable Tazomac 4.5gm iv thrice daily. Locally open wound were managed by betadine dressing. Four patients responded well to treatment.

However in one patient mesh was involved by infection, resulting in exposure of mesh compelling into extraction of the mesh. Post-op recovery was uneventful. No recurrence of hernia till one year of follow-up.

Discussion

Age : In our study of 241 cases, maximum occurrence of inguinal hernia was found in age group 30 - 40 years. Maximum age specified involvement was 60 years. It was observed that the infected group is not towards old age. 20 got post-op infection were also from age group 30 – 40 years of age. 5 patients between were from 40 – 50 years of age. Advanced age is one factor responsible for infection according to **Michael N etal**, which is not obvious in our series.⁽⁵⁾

Types of Hernia : Out of 20 cases of infection, 11 cases were direct and 9 cases were indirect hernia. No such observation in different series noticed. Hence difficult to comment.

Technique : All are repaired by Lichtenstein tension free, repaired by experienced surgeon.

Mesh : Prolene mesh was used in all cases. The wettability or water contact angle of mesh influences---attachment.⁽⁶⁾ But various studies have failed to

show advantages of hydrophilic polyester based mesh.⁽⁷⁾ As we used prolene mesh and got the good result. One mesh expulsion was found in our series.

Operative time : Operative time is considered risk factor for mesh infection.⁽⁸⁾ In our series the operative time was in between 24 -56 min. The patient who developed post-op wound infection operated in 30 to 45 minute (not at the extreme end). Needs further study to reach at any conclusion.

Age of surgeon : Three cases of sliding hernia was operated by the surgeon who was > 45 years of age. All other operated by young surgeon only < 35 years of age. It is mentioned by literature that > 45 years of age is predictive of recurrence.⁽⁹⁾ In our study surgeon > 45 years of age operated in 3 cases and there was no recurrence after one year of follow-up.

Prophylactic antibiotics : We have used post-op prophylactic antibiotic (amoxicillin + clavulanic acid) in all cases. In spite of proper antibiotics we used, 20 cases of post-op infected out of 241 cases. There is controversy in use of antibiotic prophylaxis for uncomplicated hernia repair.^(10,11) Povidone iodine solution (Betadine) is also being tried by authorities to prevent post-op infection.⁽¹²⁾ Our study is suit effective in prevention of infection to some extent. It needs further study to clarify.

Organism of infection : In a series of 76 cases , most common pathogen was staphylococcus aureus (40 cases, 53%) other pathogen included coagulase negative staphylococcus species (16 cases, 21%), Enterococcus species (9 cases, 12%), Pseudomonas aeruginosa (6 cases, 8%).⁽⁵⁾

In our series total 20 cases were infected where all were having culture of staphylococcus aureus and responded well to appropriate antibiotics after culture and ABST.

Mesh removal

Out of 20 infected case, mesh removal was in one patient only i.e 5%. In a case series mesh removal were performed in 90 out of 129 cases, i.e 70%.⁽⁵⁾ It is difficult to explain the reason, may be the virulency of organisms grown resulting in expulsion of mesh and deep seated infection.

Conclusion

In routine practice, infection is still a concern in open surgery of hernia repair. This can be prevented by some extent by maintaining sterility and adequate antibiotics as and when required. Treatment of infected mesh possible by local debridement, irrigation, mesh removal and systemic antibiotics. It is worth remembering “ Prevention is better than cure”.

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