Original Article

Hernioplasty

Incidence of Wound Infection Following Inguinal Hernia Tension Free Mesh Repair (Hernioplasty) without Antibiotics

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ABSTRACT

Objective: To see the wound infection incidence post hernioplasty without the use of antibiotics.
Study Design: Observational / Cross-sectional study
Place and Duration of Study: This study was conducted Surgical Unit III, V and VI, Civil Hospital Karachi from January 2006 to December 2013.
Materials and Methods: There were a total of 250 patients. There were no use of antibiotics after hernioplasty. Patients under eighteen years, recurrent hernias, immunosuppressive diseases (like diabetes mellitus), or already on antibiotic were excluded from the study.
Results: Incidence of wound infection was 3.6%, which were then treated conservatively. No mortality observed.
Conclusion: The incidence of post operative wound infection following inguinal hernioplasty without antibiotic use was 3.6%.
Key Words: Inguinal Hernia, Inguinal Hernioplasty, Complications, Infection, Incidence, Antibiotics.

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INTRODUCTION

Hernia is a condition in which part of the viscous bulges through a normal or abnormal openings of the body. An inguinal hernia occurs in the groin (the area between the abdomen and thigh). It is called "inguinal" because the intestines or omentum push through a weak spot in the inguinal canal. Hernia has both economical and medical importance, as it decreases the 6productivity by causing pain, limiting mobility and sometimes simple and strangulated intestinal obstruction. the Inguinal hernioplasty is a clean surgery and benefits of antibiotic prophylaxis in clean surgery is still uncertain.[1] In Europe and America, about one million inguinal hernia repairs are performed in a year.[2-3] Most of the repairs are done by using various mesh techniques[3]. Lots of procedures and prosthetic material have been developed and used in order to reduce postoperative complications and recurrence[5]. Uscher used Marlex mesh (high-density polyethylene) are used for inguinal hernia repair.[6] In 1948 Koontz develop the Tantalum mesh.[4,7,8] Nylon mesh used for inguinal hernia repair by Giraud and colleagues in 1951.[9] In 1964 Lichtenstein introduced the tension free mesh repair of inguinal hernia.[10,11] Lichtenstein "open flat mesh repair" is the most frequently performed procedure all over the world.[11,12] Later in 1975 Stoppa use a tension free mesh repair by using prosthesis preperitoneal.[13] Both Lichtenstein and Stoppa, has change the surgical dynamics of inguinal hernia operations by using tension free mesh hernia repair. For the last 10 years mesh repairs for inguinal hernia repair becomes a substitute for traditional suture repairs.[5,7,8,9,11,13] Recurrence rates in Lichtenstein procedure was very low as compare with those of the Shouldice repair and other conventional procedures.[14,15] Hernial repair is a clean operation and rate of infection is supposed to be lower than 1%.[15] The chances of wound infection has been seen to be increased by the presence of mesh. The use of antibiotic is often recommended for the prevention of mesh infection.[16] The reported incidence of mesh infection is 1.9% to 7.5%.

The present study was conducted to see the incident rate of post-operative wound infection without the prophylactic use of antibiotics.

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MATERIALS AND METHODS

This study was conducted in Surgical Unit III, V and VI Civil Hospital Karachi from January 2006 to December 2013. A total of two hundred and fifty patients were included. In the surgical out patients department patients presenting with inguinal hernia were included. Patients less than 18 years, patients with bilateral,

recurrent, obstructed and strangulated hernias, diabetic patients, chronic hepatitis and who were on antibiotics and steroids were excluded from the study. The selected patients were admitted and went under detailed evaluation preoperatively. The following investigations were done preoperatively: complete blood picture, serum electrolytes, urea, creatinine, fasting and random blood sugar, hepititis B and C profile, X-ray chest, ECG, ECHO inpatients above 60 and who had cardiac history) were carried. In all cases hernioplasty by using a polypropylene mesh. Mesh placed at the posterior wall of the inguinal canal and fixed by 2/0 polypropylene sutures. All operations were performed by consultant surgeons. Ninety percent patients were discharged from the hospital on first post operative day after inspecting the wound. Follow up was done in surgical out patient department on 8th , 16th and 30th post operative day for wound inspection and physical examination On follow up wounds were examined carefully for sign and symptoms of infection like pain, redness around the wound, serous or purulent discharge etc. Patients were followed according to the National Nosocomial Infection Surveillance system (NNISS).[18,19]

RESULTS

All included patients in this study were male. Out of two hundred and fifty patients, one hundred and fourteen patients had right sided hernia and one hundred and thirty seven had left sided hernia. 80 patients had direct ingunial hernias and rest 170 patients had indirect inguinal hernias.

In this study incidence of post operative wound infection was 3.6% (nine patients). Three patients (1.2%) presented with wound infection, wound redness in two patients (0.8%), wound seroma was presented in two patients (0.8%), scrotal edema/haematoma one (0.4%) and One patient (0.4%) presented with residual post operative pain. Patients having infection were then treated with antibiotics and dressing. Drainage of pus was done in 3 patients and delayed primary closure was required. None of the patient required an entire mesh removal.

Table No.1: Age Distribution

Age (years)	Right Side	Infection RIH	Left Side	Infection LIH	Indirect	Direct	Total
21-30	21	0	25	0	44	2	46
31-40	19	1	29	0	45	3	48
41-50	21	2	19	2	30	10	40
51-60	32	0	38	2	30	40	70
>60	20	1	26	1	21	25	45
Total	113(53.2%)	4 (1.6%)	137(54.8%)	5(2%)	170(68%)	80(32%)	250

DISCUSSION

The present study documented the incidence of wound infection which develops after Lichtenstein's tension free inguinal hernioplasty without antibiotics. National Nosocomial Infection Surveillance system (NNISS) defines the surgical site infection (SSIs), as the infection of a wound that occurs within 30 days post-surgery.[18,19] The rate of mesh infection is variable. The reported wound infection is from 0.7% to 15%.[20,21] Estimated incidence in the present study was 3.6% which is consistent with the international and the reported local data. Tzovaras G, et al reported an infection rate of 2.33 % in mesh repair for inguinal hernia without antibiotic use pre and post operatively.[22] Our study predicts that the routine use of antibiotics post operatively does not confer any additional benefit in the elective mesh inguinal hernia repair. 22 Nordin et al[23] reported an infection rate of 4%,[4] Anfenacker and his colleagues[24] reported 1.7% of wounds get infected after Lichtenstein tension free mesh repair and there is no major difference between antibiotic prophylaxis and placebo group. So they also concluded that antibiotic use during surgery is not very much recommended in Lichtenstein tension free repair for inguinal hernia.

CONCLUSION

The incidence of post operative wound infection following inguinal hernioplasty without antibiotic use was 3.6%. Inguinal hernia with Lichtenstein tension free mesh repair can be done safely without antibiotics. It will reduce the economical burden on patients and public sector hospitals.

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Boxma H, Broekhuizen T, Patka P, et al. Randomised controlled trial of single-dose antibiotic prophylaxis in surgical treatment of closed fractures: the Dutch Trauma Trial. Lancet 1996;347:1133-1137.
2. Rutkow IM. Demographic and socioeconomic aspects of hernia repair in the United States in 2003. Surg Clin North Am 2003; 83:1045-1051.
3. Stoppa R, Petit J, Abourachid H, et al. [Original procedure of groin hernia repair: interposition without fixation of Dacron tulle prosthesis by

subperitoneal median approach]. Chirurgie 1973; 99:119-123.
4. Koontz AR. Tantalum mesh in the repair of ventral and inguinal hernias. South Surg 1950;16(12): 1143-8.
5. Collaboration EH. Mesh compared with non-mesh methods of open groin hernia repair: systematic review of randomized controlled trials. Br J Surg 2000; 87: 854-859.
6. George H S, Ioannis H, Christos N, Nikolaos K, Alexios S, Constantinos A, et al. Open tension free repair of inguinal hernias; the Lichtenstein technique. BMC Surg 2001;1:3.
7. Usher FC, Cogan JE, Lowry TI. A new technique for the repair of inguinal and incisional hernias. Arch Surg 1960;81:847-854.
8. Ezio G, Sonia C, Bruno V, Giovanni C, Paola M, Mattia S, Anterior Tension-Free Repair of Recurrent Inguinal Hernia Under Local Anesthesia. Ann Surg 2000;231(1): 132.
9. Taylor SG, Dwyer PJO. Chronic groin sepsis following tension free inguinal hernioplasty. Br J Surg 1999; 86:562-5.
10. Peterson SL, Eiseman B, editors. Wound infection and would dehiscence, Surgical Secret. 3rd ed. London;1996.p.40-3.
11. Amid PK, Shulman AG, Lichtenstein IL. Open. "tension-free" repair of inguinal hernias: the Lichtenstein technique. Eur J Surg 1996;162: 447-453.
12. Nyhus LM, Alani A, O'Dwyer PJ, et al. The problem: how to treat a hernia. In: Schumpelick V, Nyhus LM, editors. Meshes: Benefits and Risks. 1st ed. Berlin: Springer-Verlag;2004.p.3-39.
13. Stoppa, R., Petit, J., Henry, X.: Unsubdrated Dacron prosthesis in groin hernias. Int Surg 1975; 60:411.
14. Sean M, Ara D, Recent advances in minimal access surgery. BMJ. 2002;324(7328): 31-34.
15. Zuvella M, Millicevic M. Infection in hernia surgery. Acta Chir Iugosl 2005;52(1):9-26.
16. Raja N, Ishtiaq AC, Bashrat A , Muhammad A. Groin sepsis following Lichtenstein inguinal Hernioplasty without antibiotics prophylaxis. Pak J Med Sci 2006; 22(4):416-9.
17. Rasool M I. Inguinal hernia clinical presentation. Rawal Med J 1992; 20(1):23-6.
18. Peterson SL, Eiseman B, editors. Wound infection and would dehiscence, Surgical Secret. 3rd ed. London;1996.p.40-3.
19. Horan TC, Gaynes RP, Martone WJ, et al. CDC definitions of nosocomial surgical site infections, 1992: a modification of CDC definitions of surgical wound infections. Am J Infect Control 1992;20:271-274.
20. Yerdel MA, Akin EB, Dolalan S, et al. Effect of single dose prophylactic ampicilline and salbectum on wound infections after tension free inguinal hernia repair with a poly propylene mesh. Ann Surg 2001; 233:26-32.
21. Taylor EW, Duffy K. Surgical site infection after groin hernia repair. Br J Surg 2004; 91:105-11.
22. Tzovaras G, Delikoukos S, Christodoulides G,et al.The role of antibiotic prophylaxis in elective tension-free mesh inguinal hernia repair: results of a single-centre prospective randomised trial. Int J Clin Pract 2007;61(2):236-9.
23. Nordin P, Bartelmess P, Jansson C. Randomized trial of Lichtenstein v/s Shouldice hernia repair in general surgical practice. Br J Surg 2002; 89: 45-4.
24. Aufenacker TJ, Geldere DV. The role of antibiotic prophylaxis in prevention of wound infection after Lichtenstein open mesh repair of primary inguinal hernia: A multicenteric double blind randomized controlled trial. Ann Surg 2005; 240(6):955-61.