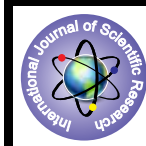


## Outcomes of Three Shot Antibiotic (Cefotaxime and Ampicillin) Therapy Regimen in Patients Operated with Inguinal Hernia – Meshplasty Operation



### Medical Science

KEYWORDS : meshplasty, antibiotics

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### ABSTRACT

*Inguinal hernia is one of the most common ailment for which patient present to general surgeon. In today's era, there is an increasing trend to perform hernia as a day care surgery; in order to reduce hospitalization, reduce postoperative morbidity and thus cost of treatment. So in inguinal hernia surgery three shots of antibiotics has been using regularly. our aim of study is to find outcomes of this regimen in hernia meshplasty operation. Wound infection and cord edema, pain, seroma and recurrence was used to evaluate outcomes. Majority of the patients stayed only for 1 day before operation and some of them developed postoperative complications. Patients with ASA grade III developed postoperative complications.*

#### Introduction:

"Total absence of tension on suture line is the sine -qua -non for the hernia repair. An operation that regularly requires a relaxing incision is not physiologically appropriate." **Berlinger 1984**

Shouldice repair regularly involved placing a relaxing incision, which is physiologically not appropriate. Hence, prosthetic tensionless repair (Lichtenstein) is advocated and has significantly decreased the recurrence rate of hernia. Inguinal hernia repair is considered as a clean surgery. Lichtenstein's repair involves placement of a prosthetic material (mainly prolene mesh) for repair of hernia and does not require placing a relaxing incision; which makes it physiologically appropriate. But the presence of foreign material in the form of mesh may place surgery to the risk of infection and other complications. Pre operative antibiotic prophylaxis, per operative aseptic technique and meticulous surgery tremendously help to prevent infection. The use of antibiotic prophylaxis before surgery and post operative antibiotic has evolved greatly in last few years. Improvement of timing of initial administration, appropriate choice of antibiotic agent and shorter duration of administration have defined more clearly the value of this technique in reducing post operative wound infection.

Prolonged use of prophylactic antibiotic beyond contamination risk period has shown to be of little value and may contribute to higher morbidity in terms of adverse drug reactions, emergence of resistance strains, super infection, and cost and increase hospital stay. So in this study, we have studied one shot of preoperative antibiotics (Cefotaxime 1g and Ampicillin 500mg) and two shot of post operative antibiotics (Cefotaxime 1g and Ampicillin 500mg) in inguinal meshplasty.

- **Objective:** To evaluate outcomes of three shot antibiotic (cefotaxime and ampicillin) therapy regimen in patients operated with inguinal hernia – meshplasty operation.
- **Materials and methods:** In this study conducted at the Department of General surgery, Guru Gobind Singh Hospital, Jamnagar, we have analyzed outcomes of three shot antibiotics ( Cefotaxime and Ampicillin ) in 50 cases operated for hernia meshplasty operation in day care basis . Outcomes are evaluated in terms of wound infection, pain, seroma, edema of spermatic cord. In this study three doses of injection CEFOTAXIME 1g and injection AMPICILIN 500mg were used as they covers all major pathogens responsible for wound infection post hernia surgery. The first dose was given IV half hour before surgery and second 8hours after completion of surgery and third 8 hour after of second dose. All cases of elective surgery of inguinal hernia (right / left/

bilateral) by prolene meshplasty with or without associated disease are included while all cases of obstructed hernia are excluded.

#### ➤ Assessment standard

- What is infection rate
- How much patients developed seroma.
- How much patients developed pain
- How much patients developed recurrence
- Epidemiological study of hernial
- Type of hernia

#### ➤ Observation and discussion:

- This study made on total 50 patients admitted in general surgical wards for inguinal hernias and being operated (Inguinal Meshplasty) between may-2009 to june-2010, were studied for wound infection following three shots of antibiotics (cefotaxime and ampicillin). Other complications like cord edema with pain, seroma and recurrence were also taken in consideration.
- In this study 34(68%) patients were in age group of 20-50 years and 16(32%) patients were in age group of 51 years and above. In later age group 2(12.5%) patients developed cord edema with pain and seroma each. None of the patients developed wound infection. In older age group prevalence of comorbid conditions are more like diabetes, hypertension which is risk factor for wound infection and complications. Low resistant power to microorganisms and decreased immunity with increasing age are the other factors affecting to it.
- In this study 40(80%) patients were from lower socioeconomic class and 10(20%) of middle class. However hernia is also prevalent in upper and middle class but usually such patients are not come to our government institute for treatment. 2(5%) patients from lower class developed postoperative complications as described above. None of them had wound infection. Poor nutrition, poor hygiene, prevalence of constipation due to low residual diet, prevalence of respiratory diseases and chronic cough, habit of smoking are factors influencing to it.
- In this study we found that incidence of inguinal hernia is common in heavy lifting workers like farmers and laborers 38 (76%) then other populations 12 (24%). Incidence of postoperative complications as described above is 5.26% in former as compared to none in later. None of them had wound infection. All of them are from lower socio-economic class. Again the factors which may cause postoperative complications associated with lower socio-economic class mentioned above may influence to it.
- In this study we found that incidence of postoperative complications were 13.33% in left sided hernias and 0 in right sided hernias. None of them had wound infection.

- In this study 18(36%) patients had direct hernia and 32(64%) had indirect hernia. 1(3.12%) patient of indirect hernia developed cord edema with pain and 1(5.55%) of direct hernia developed seroma. In indirect hernia there are chances of excessive cord manipulation and may develop cord edema
- In this study 35(70%) patients had inguinal hernia and 15(30%) patients had complete inguinoscrotal hernia. 1(6.66%) patient with inguinoscrotal hernia developed cord edema pain. Inguinoscrotal hernias are usually indirect and long standing. So chances of adhesions and excessive cord manipulation with extensive dissection are more. Same thing happened to this patient. 1(2.8%) patient with inguinal hernia developed seroma formation. None of them had wound infection.
- In this study hypertension was the most commonly associated comorbid condition (16%) and diabetes was present in 8% cases. Uncontrolled hypertension may associate with increased incidence of seroma formation but are not generally operated on elective basis. In diabetes there are chances of wound infection if it is uncontrolled because it provides nidus for growth of bacteria due to microangiopathy and increased blood sugar; in this study 5(10%) patients out of 50 stayed for 2 or more days in hospital preoperatively, 45(90%) patients stayed for only 1 day for preanaesthetic assessment. Those who stayed for 2 days or more had uncontrolled comorbid conditions like diabetes and hypertension and controlled before posting for elective surgery. Incidences of complications were 40% in them compared to 0 in others. So the factors associated with comorbid conditions can be applied here. None of the patients had wound infection.
- In this study 37(74%) patients had ASA grade II; 12(24%) had grade III and 1(2%) had grade IV. None had grade I&V. Incidence of postoperative complications were 16.66% in ASA grade III and 0 in ASA grade II. Patients with ASA grade III are associated with comorbid conditions described above. So higher ASA grade associated with more postoperative complications.
- In this study omentum was found in sac intraoperatively in 15(30%) patients; intestine in 25(50%) and both found in 10(20%) cases. In per operative hernial sac which contain both intestine and omentum; cord edema with pain occurred in 1 patient (10%). Because intestine and omentum both usually found in inguinoscrotal indirect hernia there are chances of excessive cord manipulation and developed cord edema with pain. 1(4%) patient developed seroma formation in which intestine contained in sac. None of the patient had wound infection.
- In this study 74% of the surgeries are completed before 44 minutes. The type of inguinal hernia, extent of inguinal hernia, the duration of surgery, the contents of sac, extent of dissection and amount of bleeding all determines the duration of surgery. Longer operative durations are usually associated with higher rate of complications such as seroma, cord edema and wound infection. In our study 6(12%) patients required 45-59 minutes and 7(14%) required 60 minutes and more. out of later 2(28.5%) developed postoperative complications mentioned above. so surgery should be done as speedily as possible without compromising the quality of surgery. None of the patient had wound infection.
- In this study out of 50 patients in 11(22%) patients postoperative negative suction drain kept and in 39(78%) drain not kept. Patient with drain developed cord edema with pain (9.09%) and patient without drain developed seroma (2.5%) On 7<sup>th</sup> postoperative day. Seroma formation may occur due to formation of dead space and collection in it. Drain placement is not required in all cases. It is required in cases of extensive dissection, longer surgical duration, and inadequate haemostasis. Even though drain kept patient develops cord edema because extensive dissection, longer duration of surgery, inadequate haemostasis and surgery done by residents. None of the patient had wound infection.
- In this study 72% surgeries done by residents and 28% by consultants. Out of them all incidence of complications occurred in surgeries done by residents (5.55%) due to less operative skill lead to moderate to extensive dissection and increasing operative time.
- In this study out of 50 patients only 2 developed postoperative complications; one had seroma (2%) one had cord edema with pain (2%). None of the patients had wound infection or recurrence. Seroma required single aspiration and clear fluid aspirated, fluid sent for culture and sensitivity and found negative for any bacteria. Cord edema with pain required anti-inflammatory drug for 3 days.

#### Conclusion:

Conclusion of this study that with minimal antimicrobials optimum results can be obtained in planned inguinal meshplasty.

It is crucial to have adequate antimicrobial level in blood a time of incision, with such as that antimicrobials should be given prior to surgery and to maintained adequate tissue level throughout the period of contamination risk.

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