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Post-operative surgical site infection in Inguinal Hernia.

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Abstract:

Introduction: Surgical site infection is defined as microbial contamination of surgical wound within 30 days of operation; most common complication occurs after surgery and increase the mortality and morbidity rate.

Objective: To find prevalence of post-operative surgical site infection and it's causing organism.

Methodology: This descriptive study was conducted between Feb 2014 to July 2017, 100 cases operated in Bhurgri Hospital Matli, were included after taking informed consent. The surgical site when found infected, swab sensitivity was sent.

Result: The age range was from one month to 70 years. A Total number of 100 patients with primary and recurrent inguinal hernia were subjected to hernia repair with proven mesh and anatomically repair.

Conclusion: Escherichia Coli is the most common pathogens involved in post-surgical infection.

Keywords:
Inguinal hernia, mesh repair, wound infection, microorganism infection rate.

Introduction:

Hernia by definition is protruding of an organ or a part of an organ through the wall that contains it, indirect inguinal hernias, which are caused by a defect in the abdominal wall that is congenital, or present at birth. Indirect hernias can appear before age one and often appear before age 30. However, they may appear later in life. Premature infants have a higher chance of developing an indirect inguinal hernia. Direct inguinal hernias, which usually occur only in male adults and are caused by a weakness in the muscles of the abdominal wall that develops over time. Inguinal hernias are common throughout the world. These account for 75% for all forms of hernias and more commons in males than females in ratio of 20:11. Some people who have an inguinal hernia on one side will have or will develop a hernia on the other side. People with a family history of inguinal hernias are more likely to develop inguinal hernias. Studies also suggest that people who smoke have an increased risk of inguinal hernias. Day case surgery for inguinal hernia can be performed safely in carefully selected patient[2]. Various repair procedures like Facial repair, tension free prosthetic repair and open peritoneal mesh repair for inguinal hernia are safe procedurae[3]. Hernia repair with mesh is one of most common procedures in general surgery and antibiotic for prevention of infection superposes is becoming a serious problem due to the risk of contribution to development of bacterial resistance and significance increase in health care costs[4]. Polypropylene mesh is the most widely used material in inguinal hernia repair[5]. Tension-free repair reduces the recurrence rate, improves postoperative recovery, and lowers cost; it has become the gold standard procedure for repairing inguinal harniaas[6].

A surgical site infection is an infection that occurs after surgery in the part of the body where the surgery took place. It is second commonest complication of wound healing, accounting for 20%-25% of the total. Surgical site infections can sometimes be superficial infections involving the skin only. Other surgical site infections are more serious and can involve tissues under the skin, organs, or implanted material. Wound infection is the second's nosocomial infection[7].and causes patient discomfort. Wound infection usually appears between the 5th and 10th day after surgery[8.] Surgical site infection after hernia repair is common[9].Surgical site infection causes increased morbidity, mortality, extended hospitalization. The surveillance of Nosocomial infection along with antimicrobial audit will decrease the risk of post-surgical infections[10].

Methodology:

This descriptive prospective study was done in Bhurgri Hospital Matli from 1 March 2013 to 30 Sep 2017. A total of 100 patients having inguinal hernia from which 80 patient were performed mesh repair. All patients with inguinal hernia presenting to out-patient department, underwent through physical and clinical examination, detail history of illness, s.ite of hernia, duration and type of hernia. Routine investigations like: Blood CP, Urea, urine D/R, Blood Sugar, x-ray chest and ECG if patient is >45 years or Hypertensive. All the patients with Inguinal hernia were operated in surgical operation theater on routine operative list. During operation the site and side, and other information was noted. After operation all these patients were examined in ward for taking wound examination to know about early signs of wound infection, and if any pus was discharge from wound it was taken for culture and sensitivity to know organism involved. After being discharge from hospital these patients were advised for first follow up in 5 days then every week for two consequent weeks. All these information and other demographic features like, name, sex, age, and address were recorded in a proforma specially designed for this purpose.

Result:

A Total number of 100 patients with primary and recurrent inguinal hernia were subjected to hernia repair, herniotomy and some of them were repaired with prolene mesh. In this study the age of patients was ranged from 1month-75 years. In the present study the *E.coli* was the causative organism in 4 cases out of 6 infected cases next in frequency by *Steph: Aureas*.

Figure-1. Age distribution pattern

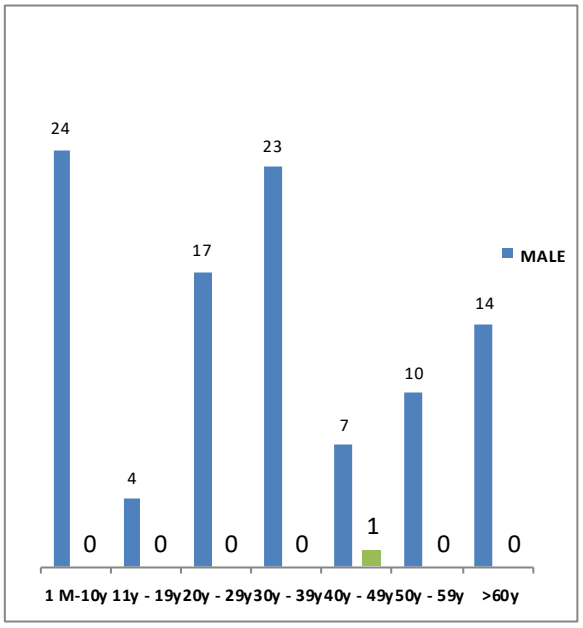

Figure-2. Hernia Types Repaired

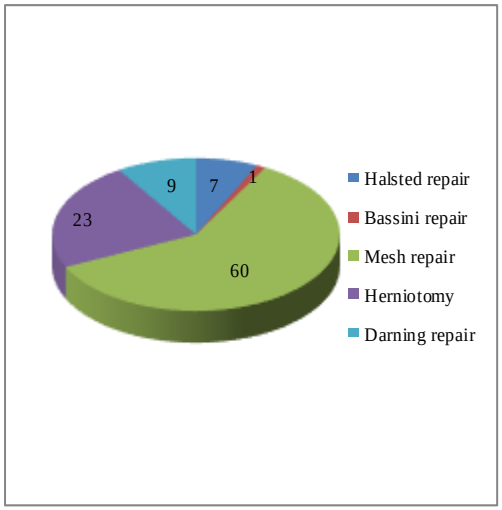

Table-1: Antibiotic sensitivity pattern against various organism		
Sensitivity	Escherichia coli (n=4)	Staph aureus (n=2)
Antibiotics	S %	S %
Amoxycillin/ Clavulanic Acid	3(75)	2(100)
Piperacillin/Tazobactam	3(75)	2(100)
Cefoperazone/Sulbactam	1(25)	2(100)
Cephradine	1(25)	1(50)
Cefotaxime	1(25)	0
Ceftazidime	1(25)	0
Enoxabid	1(25)	0
Ciprofloxacin	3(75)	0
Fosfomycine	2(50)	2(100)
Meropenem	1(25)	2(100)
Amikacin	3(75)	0
Levofloxacin	2(50)	1(50)
Moxifloxacin	0	2(100)
Tienam	2(50)	0

Table-2: Antibiotic Resistant pattern against various organism		
Resistivity	Escherichia coli (n=4)	Staph aureus (n=2)
Antibiotics	R%	R%
Amoxycillin/ Clavulanic Acid	2(50)	0
Piperacillin/Tazobactam	0	0
Cefoperazone/Sulbactam	0	0
Cefradine	3(75)	0
Cefotaxime	2(50)	0
Ceftazidime	2(50)	2(100)
Enoxabid	2(50)	0
Ciproxine	1(25)	2(50)
Fosfomycin	0	0
Meropenem	1 (25)	0
Amikacin	0	0
Cefixime	1(25)	0
Ceftriaxone	1 (25)	0

Discussion:

Among 100% cases of inguinal hernia, 99% were males and 1% was females. About 73% of the inguinal hernias occurred on the right side while 27% occurred on the left side Fig. 1: Age and sex specific prevalence of hernia in patients. The prevalence of hernia is dependent on risk factors. These include sex, age, cough, constipation, repeated pregnancies, obesity, smoking, heavy lifting, prior operations and hereditary factors. There was a higher incidence of hernia in males (99%) than females (1%). Similarly, it was found out in other studies that girls have a much lower rate of hernia than boys [11]. The incidence of hernia was the highest (24%) among the age group of one month to ten years; all of them were males, as shown in the Fig.1. The prevalence of hernia is independent of different age groups. Smokers have a fourfold risk of hernia [12]. Studies of connective tissue from patients with inguinal hernia have shown that smoking may

be associated with hernia formation due to a defective connective tissue metabolism. The prevalence of hernia was low in the presence of overweight or adiposity suggesting that obesity is a protective factor [13]. According to a study, women had a significantly higher recurrence rate than men [14]. Over the couple of years, number of studies have revealed the fact of increased cost of care associated with prolong period of hospitalization due to post-surgical infections[15]. Age distribution pattern of patients shows in Figure-1. In the present study the *E.Coli* was the causative organism in 4 cases out of 6 infected cases next in frequency by *Steph Aureas*.

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