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A Study of Port Site Infection after Laproscopic Cholecystectomy at Al-Wahda Hospital Derna Libya

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Abstract: ***Minimal access surgery has changed the outlook of surgery dramatically. A less painful procedure, Ease of early recovery and return to work along with lesser surgical scar has brought a lot of popularity to laproscopic surgery. Port site infection though occurs in a minority of cases, Butat times becomes a troublesome complication. Despite advances made in the field of antimicrobials, sterilization and surgical techniques as well as operation theatre ventilation, Portsite infection still prevails, Emergence of multidrug resistant strains of rapidly growing atypical mycobacteria has added to the problem of portsite infections, Portsite infections are preventable when appropriate care is taken preoperative, intraoperative and postoperatively. A non surgical approach is effective in most of the cases. Early identification of the condition and appropriate treatment with Macrolides, Quinolones and Aminoglycosides, use of contaminated water to clean the instruments before immersion into glutaraldehyde solution seeding at the port site due to tuberculosis of gall bladder can be some of the causes, The other causes include traumatic injuries associated with access and manipulation, Laproscopic instruments and diathermy injuries. The present study was conducted at Al Wahda Hospital Derna from July 2017 to December 2018. Hundred and Sixteen patients with twenty five males and ninety one females were included in the present study. Details of patient identity, age, sex, preoperative workup including baseline investigations, preoperative sonography findings, intraoperative spillage of stones and bile were recorded. Nine of the patients had spillage of bile and gall stones, of these patients five developed portsite infection. Most common causative organisms were found to be Staphylococcus. Seven out of the nine patients who had spillage of bile were having multiple gall stones and two had single stones. Of the five cases with portsite infection, One was male and four were females. It was found that three patients had portsite infection without intraoperative spillage while two others had portsite infection with spillage of bile and gall stones. In conclusion around 8% of patients will have spillage of bile and stones, The incidence of portsiteinfection is nearly the same in both the cases.***

Table 1: Spillage of stones V/S Bile in relation to No. of stones

Spillage	Numbers/Total	Percentage
Single	2/31	6.4%
Multiple	7/85	8.2%

Table 2: Gender V/s Port Site Infection Incidences

Gender	Infected/Total	Percentage
Male	1/25	4%
Female	4/91	4.4%

Table 3: Port site infection V/s spillage of stones and bile

Port site infection	Infected/Total	Percentage
With spillage	2/30	6.6%
Without spillage	3/86	3.5%

1. Introduction

A better cosmesis, lesser degree of pain fast recovery and an early return to work are some of the advantages of laproscopic surgery over the conventional open surgery which have made it very popular among patients. An infrequent but preventable complication is portsiteinfection which will erode the advantages of minimal access surgery. This adds to the morbidity, Hospital stay and financial burden.

This article focuses on the clinical presentation, etiopathogenesis, management and prevention of portsite infection. Common complications of minimal access surgery are injuries associated with gaining access to peritoneal cavity. Bowel injuries or major vascular injuries are uncommon, during initial access serious potential life threatening complications can occur (1). Laproscopic procedures have an overall complication rate of 1.4 per 1000 procedures (2). Portsite infections constitutes about 21 per 100000 cases (3).

Incidence of Portsite infections

Following laproscopic cholecystectomy portsite infection occurs less frequently than after an open cholecystectomy mainly due to small incision (4). Umbilical portsite infection in laproscopic cholecystectomy is not affected the technique (5). Surgical site infection occurs within a month of operative procedure. Portsite infection is limited to laproscopic surgery.

Surgical site infections are categorized into.

1) Superficial surgical site infections involve skin and subcutaneous tissue.
2) Deep surgical site infections involve fascia and muscle layer.
3) Organ/space surgical site infections.

Classification of wounds,

1) Clean: A surgical wound that is neither exposed to any inflamed tissue nor has breached the gastrointestinal, respiratory, genital or uninfected urinary tract.
2) Clean contaminated, surgical wounds where there is controlled entry into gastrointestinal, respiratory, genital or uninfected urinary tract with minimal contamination.
3) Contaminated fresh wounds related to trauma, surgical wounds with major breach in sterile technique or gross contamination from the gastrointestinal tract and incisions through nonpurulent inflammatory tissues.
4) Dirty or infected old wounds following trauma having deviatalised tissue and surgical procedure performed in the presence of active infection or visceral perforation.

Risk factors for portsite infections

- Preoperative stay in hospital of more than 2 days (6)
- Duration of operation 2 hours or more (6)
- Prophylactic antibiotics, obesity and drains have no effect on the rate of Surgical site infections following cholecystectomy (9)
- Acutely inflammed organs, emergency surgical adversely affect the rate of surgical site infections
- Risk of surgical site infections is increased in patients with a history of nicotine nor steroid users, diabetes and malnutrition (8)
- Preoperative colonization of nares with staphylococcus aureus
- Umbilical port site infection is more common.

Microbial flora causing port site infections

- Microorganism may be exogenous or endogenous, exogenous flora may be from any contaminated sourse in the sterile surgical field including surgeon team, instruments or room air (10)
- Clean surgical wounds usually harbor staphylococcus aureus which may have an exogenous origin or may be from the patients flora (11)
- Rapid growing atypical mycobacterium species has an incubation period of 3-4 weeks. They show a poor response to the usual antimicrobial agents (12)

Clinical presentations of port site infections

- Non mycobacterial infections present with wound discharge and erythema within 2 weeks of the surgery, The infection is limited to the skin and subcutaneous tissue
- There may be fever with pain of tenderness and inflammation of the surrounding tissue (10)

Prevention of port site infections

- Infection from exogenous sources can be controlled
- When sterile endobag is used for retrieval of specimen it reduces endogenous infection.

Diagnosis of the etiological agent with early management

- Early port site infections; Pus culture & sensitivity + Gram staining
- Staphylococcus aureus are usually isolated from clean wounds, beta lactamase production and methicillin resistance is to be tested (3)
- Isolates of pseudomonas aeruginosa are usually resistant to gentamicin but respond well to imipenum

2. Conclusion

The incidence of bile spillage is 8% and the instance of PSIsmore with multiple gall stones, superficial surgical site infection is more common females than males, There is increase in chance of superficialsurgical site infections in caSse of spillage of stone and bile.

Non mycobacterial infections present with wound discharge and erythema, There may be fever along with pain or tenderness and inflammation of the surrounding tissue.

Staphylococcus Aureus is most commonly isolated pathogen.

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