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SURGICAL SITE INFECTION;

FREQUENCY AFTER OPEN CHOLECYSTECTOMY USING SOUTHAMPTON WOUND SCORING SYSTEM IN SURGICAL UNIT KHYBER TEACHING HOSPITAL PESHAWAR

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ABSTRACT… Objective: To assess the post operative wound complication after open cholecystectomy for uncomplicated Cholelithiasis. **Design:** Cross sectional descriptive. **Setting:** Surgical unit of Khyber Teaching Hospital Peshawar Pakistan. **Patients:** 223 patients underwent elective open cholecystectomy January 2011 to July 2012. **Results:** 90% patients had normal healing (grade 0 or I) ,7.5% had minor complications (grade II or III), 2.5% patients had major complication (grade IV or V) recorded during hospital stay. On follow-up in out-patient department 81%patients found to have normal healing (grade 0 or I), 15% patients had minor complications (grade II or III) and 4% patients had major complications (grade IV or V). There was an increase noted in wound grades during follow up for surgical site infections as compared to their record during hospital stay. **Conclusions:** Southampton wound scoring system is a useful tool for detection of surgical site infection and standardization. Auditing of surgical site infection by Southampton wound scoring will help the patient, surgical team and sterilization protocol to be improved.

Key words: Cholecystectomy, surgical site infection

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INTRODUCTION

While advances have been made in infection control practices, including improved operating room ventilation, sterilization methods, barriers, surgical techniques and availability of antimicrobial prophylaxis, surgical site infections remain a substantial cause of morbidity and mortality among hospitalized patients[1].

All surgical procedure should be standardized in their management of wound care. This should be ongoing process of improving methods and techniques. The method of assessment of wound infection should be structured and be carried out by an expert junior staff; a house surgeon or trainee medical officer. The surgical site infection assessment is influenced by hospital stay. Some patients are discharged before the due days of expected and suspected wound infection. The demographic details and contacts should be obtained. Patient should be counseled beforehand about their wound problems and auditing. Quite frequently it is stated that surgical site infection rate after CLEAN surgery gives an appropriate indicator of surgical performance. For this purpose Southampton wound scoring system should be used to identify Good surgical wards[2].

Surveillance of surgical site infection with feedback of appropriate data to surgeons has been shown to be an important component of strategies to reduce surgical site infection risk[3].

Surgical site infection detection is however, the rigor of surgeon with which these complications are sought, recorded and followed up[4].

A successful surveillance program includes the use of epidemiologically-sound infections and effective surveillance methods, stratification of SSI rates according to risk factors associated with SSI development and data feedback[5,6].

The objective of this study was to detect and quantify the surgical site infection through the standard of measurement i.e.; Southampton wound scoring system.

PATIENTS AND METHODS

A cross sectional descriptive study of uncomplicated cholelithiasis underwent open cholecystectomy done via sub-costal or transverse incision was carried out on 223 patients from January 2011 to May 2012 in surgical unit of Khyber Teaching Hospital. Patient were admitted a day before surgery and usually discharge home after 2-5 days. Before discharge their wound was graded by Southampton wound scoring system (given below). The patients were then followed up in out- patient department after 10-14 days post operatively and later after 6-8 weeks, or called for in case of any wound complication. Wounds were classified as a) normal healing (grade 0 or grade I); b) minor complication (grade II or grade III); c) wound infection-wounds graded IV or V or wounds treated with antibiotics after discharge from hospital irrespective of wound graded during hospital stay; and d) major hematoma-wound requiring aspiration or evacuation. The treatment given was also noted. Data obtained on a Performa, was then analyzed and results were charted. Literature was reviewed and international wound infection rate was compared to assess our surgical performance.

RESULTS

Total of 223 patients were included in this study from January 2011 to May 2012 who underwent open cholecystectomy for symptomatic uncomplicated cholelithiasis. 23 patients were lost to follow up to outpatient department. Remaining 200 patients were assessed for surgical site infection by Southampton wound scoring system. 60 (30%) patients were males and 140 (70%) patients were female who assessed for wound complications.

Initially 160 (80%) patients graded as “0”,but during follow up this number decreased to 112 (56%) patients, while on other hand 20 (10%) patients who were graded as “I” during hospital stay, but their number increased upto 50 (25%) patients having grade “I”, further 10 (5%) patients were graded as “II” during hospital stay, subsequently 20 (10%) patients were found to have grade “II” in follow-up. Similarly during hospital stay, 5 (2.5%) patient of grade “III”, 3 (1.5%) patients of grade “IV” and 2 (1%) patients of grade “V”, when subsequently followed in OPD, 10 (5%) patients were grade “III”, 4 (2%) patients were grade “IV” and further 4 (2%) patients were graded as “V” respectively.

Southampton wound scoring system	
Grade	**Appearance**
0	Normal healing
1	Normal healing with mild bruising or erythema
A	Some bruising
b	Considerable bruising
C	Mild erythema
II	Erythema plus other signs of inflammation
A	At one point
b	Around the sutures
c	Along the wound
d	Around the wound
III	Clear or haemoserous discharge
a	At one point only (≤2cm)
b	Along the wound (>2cm)
c	Large volume
d	Prolonged (3 days)
Major complication	
IV	Pus
a	At one point only (≤2cm)
b	Along the wound (>2cm)
V Deep or server wound infection with or without tissue breakdown; haematoma requiring aspiration	

During hospital stay 180 (90%) patients had normal healing process, 15 (7.5%) patients had minor wound complications requiring no further treatment, 3 (1.5%) patients had major complications and treated with antibiotics and 2 (1%) patients required evacuation of their hematoma.

On follow-up of the patients 162 (81%) patients found to have normal healing process, 30 (15%) patients were having minor complication requiring no further treatment, 4 (2%) patients with major complication were treated with antibiotics according to culture and sensitivity reports and 4 (2%) more patients were having wound hematoma requiring evacuation.

A note was made of increase in surgical site infection grade and rate during follow up of patients who were discharged from hospital earlier. 160 (80%) patients with normal wound healing when subsequently followed in outpatient department had some erythema or mild bruising in about 48-patients. Similarly other wound graded during hospital stay was also up-graded when followed rigorously. 18 (9%) patients had local wound complication detected during follow-up in outpatient department on 10-14 days.

Initially 2 (1%) patients detected having wound hematoma during hospital stay, but during follow-up further 2-patients were found having wound hematoma, which were treated with evacuation. Similarly 10 (5%) patients were noted having marked bruising on discharge on 2nd day of operation, but during follow-up 20 (10%) patients were recorded having marked bruising. They required no further treatment and ultimately resolved in 6-8 weeks time.

Overall prognosis was good when patients rigorously followed and treated accordingly with help of culture report and evacuation of hematoma.

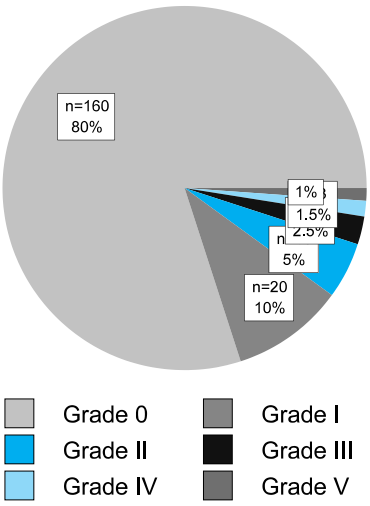
DISCUSSION

Surgical site infections are expected after open cholecystectomy when rigorously sought and followed-up; keeping in view the sterilization, operative room conditions, the stuff for the procedure and surgical techniques and post operative care in our set-up.

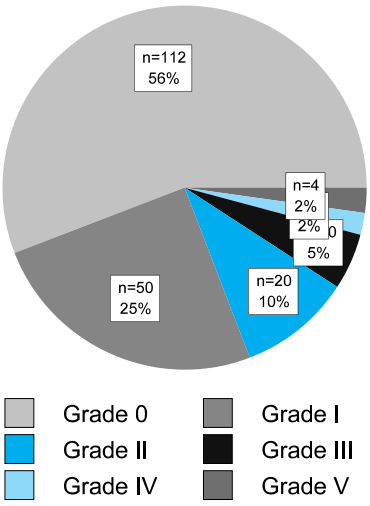
Many times minor complication are ignored or neglected, sorting just for major complications. Southampton Scoring System is easy to imply for classifying surgical site infections. Many of surgical site infections have not affected the long term outcome in terms of wound dehiscence or mortality after open cholecystectomy. Such surgical site infections detected show suboptimal wound management which has prolonged the return to their work. As many of

Wound Complication in open cholecystectomy recorded on discharge and in follow-up in number and percentage:

Complication	Ward record on discharge (n:200)		Follow-up in OPD (n:200)	
Grade	No. of patients	%age	No. of patients	%age
0	160	80	112	56
I	20	10	50	25
II	10	5	20	10
III	5	2.5	10	5
IV	3	1.5	4	2
V	2	1	4	2
Total	200	100	200	100



Frequency of patients graded during hospital stay (n=200)



Frequency of patients graded during follow-up in out-patient department (n=200)

our patients are poor class, presented to government hospitals, when suffered from wound complication badly affect their family and finances.

Good data is essential to improve upon our surgical performance. This study shows a difference after cholecystectomy on follow-up. This incidence was high in patients who were discharged on 2nd day of operation. Though, cholelithiasis by itself has not affected the wound infection. But the time spent on the procedure did affect post operative wound problem.

For proper assessment of wound infection a standard formula like Southampton Wound Scoring System is easily understandable, reproducible and implacable. This is the eager and well of the surgeon with which he wants to improve the outcome of his patients.

Proper counseling of the patients for follow-up in out-patient department can improve detection of wound problems and management. The doctors at Basic Health Units can also help in wound problem by transferring information or referring the patient to the same ward, if proper instruction has been written in discharge slips.

Our study shows surgical site infection rate for major complication (grade IV or V) about 4% after open cholecystectomy for uncomplicated cholelithiasis which is at moment not bad, may be because of antibiotics prescribed during hospital stay and on discharge home on oral antibiotics for 5-7 days. Previous study on wound infection was reported as 7.3% during 10-14 days hospital stay[7]. Some institution and surgeon has better surgical site infection rate of just 1.4% in one study[8]. But there is surgical site infection rate of 11.25% in other study[9]. Some institution even higher rate of surgical site infection rate of 17% in one series[10], while others noted about 4.4% infection rate[11].

CONCLUSIONS

As suspected and expected we also have a relative complication rate in wound problems as compared to some studies. Strict follow-up protocol in Out Patient Department and patient education can significantly improve the surveillance of surgical site infections. If we want to improve our surgical practice, we should have proper protocol of follow-up especially who discharge home earlier. Data collection method using the SOUTHAMPTON WOUND SCORING SYSTEM should be marked as STANDARD for assessment of surgical site infections.

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