

Protracted Port-site Infection: A Dilemma

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ABSTRACT

Objectives: From simple beginnings, laparoscopic surgery has now been completely integrated into the field of gynecological surgery. Infection of the port site is an infrequent complication of laparoscopy. The causative organisms of this infection are usually those which are most prevalent in the institute, e.g. *S.aureus*, *E.coli*. These types of infections are easily treated by the antibiotics which are most commonly prescribed in the institute. Sometimes, these port-site infections become protracted and recurrent and pose as a dilemma for the surgeons and become distressing for the patients.

Materials and methods: A prospective longitudinal study was conducted on 25 patients presenting to the OPD with recurrent discharge or nonhealing port-site wound following laparoscopic surgery done in our institute. These patients underwent a battery of test including detailed microbiological examination. The discharge from their port site was sent for routine aerobic culture and sensitivity. It was also sent for Z-N stain and culture for *Mycobacterium* including atypical *Mycobacterium*.

Results: Out of the 25 patients studied, 16 showed presence of AFB bacilli in their discharge and the culture for *Mycobacterium* showed presence of Atypical *Mycobacterium* in 12 cases. Out of the remaining nine patients, six showed a growth of *S. aureus* on aerobic culture and the remaining patients had a growth of *E. coli*.

Conclusion: Atypical *Mycobacterium* is the most common causative organism of recurrent port-site infection in our institute. This type of infection then require a full course of antituberculous drugs for complete eradication. So, when treating a case of nonhealing or recurrent port-site infection, atypical *Mycobacterium* infection should be kept in mind.

Keywords: Port-site infection, Laparoscopy, Atypical *Mycobacterium*.

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INTRODUCTION

Advancement in the field of laparoscopic surgery has led to its emergence and acceptance as a formidable tool which has revolutionized the field of gynecology. In the seventies, laparoscope served mainly as a diagnostic tool and its only operative use was tubal sterilization. Over the next decade, the marriage of technology and advances in surgical expertise led to the expansion of the horizon of laparoscopic surgery. As the list of surgeries increased in leaps and bounds, the complications of laparoscopy also surfaced at the same time. One of the chronic complications is the port-site infection which can lead to a protracted morbid situation. It washes away all the advantages of laparoscopic surgery as the patient becomes frustrated and preoccupied with the redundant infection. The

aim of this study was to overview the situation of port infection in our institution.

MATERIALS AND METHODS

The study was conducted in the Department of Obstetrics and Gynecology, Medical College Kolkata over a period of 1 year from January to December 2009. It was a prospective longitudinal study. Clearance was obtained from the institutional ethics committee. All the patients undergoing laparoscopic surgery in the department were followed up. Patients who had discharged from port-site 2 weeks after surgery and those with protracted and recurrent port-site discharge that did not respond to the routinely prescribed antibiotics, were included in the study.

Detailed history from the patient was elicited including history of contact. Operative notes were reviewed. A detailed examination was done to note: (1) Number of port, site infected; (2) site of infection; (3) type of discharge; (4) condition of port site.

Discharge or scrapping from the port site was sent for detailed microbiological examination including:

- Gram stain
- Aerobic culture and sensitivity
- Z-N stain and Bactec culture.

RESULTS

Total number of laparoscopy done in the year 2009 was 192 out of which port infection was detected in 25 (13.02%) women.

Table 1 shows that the commonest port infected was the side port (64%) (Fig. 1).

| Site of infection | No. of cases |
|-------------------|--------------|
| Umbilical port | 6 (24%) |
| Side port | 16 (64%) |
| Suprapubic port | 3 (12%) |



Fig. 1: Side port infection

As is evident from Table 2, operative cases accounted for 36% and diagnostic cases for 64% of the infections. This may be due to the greater number of diagnostic cases performed in our institution as compared to operative ones.

In majority of the cases (48%), there was an interval of 4 to 6 weeks between surgery and infection (Table 3).

Table 4 reflects a search for the causative organism. Acid fast bacilli (AFB) was responsible for 16 (64%) of the cases out of which atypical mycobacteria had a major share in 12 cases. The second most common offender was *Staphylococcus aureus*.

Table 2: Indication of surgery

| | |
|-----------------------|----------------|
| <i>Operative</i> | 9 cases (36%) |
| LAVH | 5 |
| Adhesiolysis | 2 |
| Cystectomy | 2 |
| <i>Diagnostic</i> | 16 cases (64%) |
| Primary infertility | 9 |
| Secondary infertility | 5 |
| Chronic pelvic pain | 2 |

Table 3: Surgery-infection interval

| <i>Time interval</i> | <i>No. of cases</i> |
|----------------------|---------------------|
| 2-4 weeks | 7 (14%) |
| 4-6 weeks | 12 (48%) |
| > 6 weeks | 6 (12%) |

Table 4: Causative organism

| | |
|--|----------|
| <i>Acid fast bacilli</i> | 16 (64%) |
| <i>Mycobacterium tuberculosis</i> | 4 |
| <i>Atypical Mycobacterium</i> | 12 |
| <i>Other organism on aerobic culture</i> | 9 (34%) |
| <i>Staphylococcus aureus</i> | 5 |
| <i>E. coli</i> | 3 |
| <i>Pseudomonas</i> | 1 |

DISCUSSION

Since its inception into clinical practice, the aim of laparoscopic surgery was to enhance the cosmetic outlook of the surgical field, lessen the postoperative pain and duration of hospital stay so as to bring about a reduction in the magnitude of the convalescence. All of these are served with smaller incisions of keyhole surgery, but when these tiny incisions get cursed with infections with a dragging and indolent course, the entire purpose of decreasing morbidity goes into vain.

Among 13.02% of the women undergoing laparoscopy in our institution in 2009 developed infections at the port site and the commonest organism found was atypical mycobacteria. In a study of 35 patients, an outbreak of 145 port-site infections with atypical mycobacteria were reported by Vijay raghavan R et al¹ over a period of 6 weeks. The contaminating source was ultimately identified as the rinsing water used for washing the chemically disinfected instruments. The organism survived and grew in the biofilm at the bottom of the

disinfectant trays and within the sleeves of reusable laparoscopic instruments.

A similar case was reported by Rajani et al² where a woman presented with multiple erythematous nodules plaques and discharging sinuses over the abdomen 45 days after laparoscopic ovarian cystectomy. Discharge showed AFB on Z-N stain and culture yielded *Mycobacterium chelonae*.

Outbreak of port infections with *Atypical mycobacteria* have been cited in literature from time to time. These are due to *Mycobacterium chelonae*, *M. fortuitum* and *M. abscessus* which are collectively referred to as *M. fortuitum* complex. They are fast growing and may fail to grow at 37 degree so incubation at 30 to 33 degree is required. They are often notoriously resistant to antitubercular therapy (ATT) and require antibiotics like clarithromycin for a long course extending over 6 to 9 months. Two cases were resistant to ATT in our series and were subsequently treated with clarithromycin and ciprofloxacin for 6 months. Sethi NK et al³ published a case of *M. chelonae* infection following laparoscopic inguinal herniorrhaphy which was resistant to ATT (Fig. 2).

Many of the protracted cases develop sinuses which require exploration, debridement and excision of the sinus tract followed by antibacterial agents for 6 months. Two of our cases required excision. A case of laparoscopic appendectomy was reported by Bhandarker et al⁴ which demanded excision.

When we searched for the commonest site of infection, the side port was found to be leading the list. It is worth mentioning that this was the port used for retrieving the specimens in ovarian cystectomies. We did not use an Endobag for the same and this was a lapse from the critical point of view. Jan WA et al⁵ reported the frequency of port-site infection in laparoscopic cholecystectomies in which they found that the most common site of infection was the trocar site of gallbladder extraction. The lesson learnt from this is that using a sterile Endobag can slash down the rates of infection at the sites of retrieval.

CONCLUSION

Port infection following laparoscopic surgery is indeed a frustrating situation for both the patient and the surgeon. More does it take a protracted and chronic shape when the causative



Fig. 2: Delayed development port-site infection in the midline port

organism is the atypical mycobacteria. Awareness of this ubiquitous opportunistic organism that is not easily eradicated from the hospital environment, careful surveillance, detailed attention to disinfection methods of medical devices and appropriate control measures are essential to prevent potential outbreaks.

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