Original Article

Laparoscopic Versus Open Appendicectomy

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Objective: To compare the outcome of laparoscopic appendicectomy vs open appendicectomy, comparing operative time, length of hospital stay with post operative pain and complication rate.
Material & Methods: This retrospective study was performed over a period of two years on patients admitted to Shalamar Hospital, Lahore under supervision of one surgeon.100 patients were included in study, 60 patients had laparoscopic appendicectomy (group-LA) and 40 patients had open appendicectomy (Group-OA).
Results: Out of group LA, 20% (12) had perforated appendices while in group-OA 12% (4) had perforated appendices. Conversion to open appendectomy was done in 6.66 % (4) in group-LA. Laparoscopic appendectomy was associated with shorter hospital stay (mean 2.2 days) as compared to open appendectomy (Mean 3.1 days). In group LA incidence of wound infection was 5.0 % as compared to group OA in which it was 12.5%. There was no significant difference in operative time (LA = 51.3 minutes versus OA = 40.6 minutes). However, cost of group-LA (Rs. 22,500) was higher as compared to group-OA (Rs.15, 200).
Conclusion: Laparoscopic appendectomy is as safe and efficient as open appendectomy provided surgical experience and equipment are available.
Key Words: Laparoscopic appendectomy, Appendectomy, Appendicitis, Laparoscopic vs. open appendectomy

Introduction

Acute appendicitis was first recognized as a disease entity in the 16th century. Mc Burney describes the clinical findings in 1889. Laparoscopic appendectomy was first described in 1983. Laparoscopic appendectomy though widely practiced has not gained universal approval. It is a safe operation and post operative complication occurs in few patients. Minimal access surgery has proven to be a useful surgical technique. Patient's comfort is great consideration in the 21st century. Whether laparoscopy offers a benefit over open surgery in the management of acute appendicitis or not, remains a subject of controversy despite the publication of numerous randomized trials.

Objective:

The objective of this study was to compare the effectiveness and safety of LA vs OA in the treatment of acute appendicitis. Following parameters were evaluated;

1. Methods of patient selection
2. Operative techniques
3. Duration of surgery
4. Hospital stay
5. Wound infection
6. Intra abdominal abscess
7. Cost effectiveness

Material & Methods

The study was performed in Shalamar Hospital, Lahore over a period of 2 years (January 2004 to January 2006). All patients, included in the study, were admitted through the emergency and were diagnosed by one consultant surgeon. Patients below the age of 12 years and patients with generalized peritonitis were excluded from the study. The decision to perform OA or LA was passed on surgeon's as well as patient's will.

Both procedures OA & LA were subject to following parameters. Duration of surgery, length of hospital stay, post operative pain, post operative complications like wound infection & intra-abdominal abscess formation & cost of the procedure. All findings were noted on performas & data was statistically analyzed using SPSS.

Results

Out of total 100 patients presenting during this period, 60 were included in LA group & 40 in OA group. In LA group, 25 patients were males & 35 female. Age of patients was between 25-35 years (median 24 years). In OA group 15 were male patients & 30 female patients, age was between 15-68 with median of 25 years. In LA group 12 patients (20%) had perforated appendix & in OA group 4 (12.50%). Mean hospital stay was 2.2 days in LA

group while it was 3.1 days in OA group (p= 0.229). Mean duration of surgery in LA group was 51.3 minutes (range 35-100 minutes) while it was 40.8 minutes (range 30-95 minutes) in OA group (p= 0.491). Conversion was required to OA in 4 (6.66%) patients. Wound infection as one of post operative complications was seen in 3 patients (5.0%) in LA group while 5 patients (12.5%) in OA group (p = 0.295). Intra abdominal abscess was seen in 3 patients (5.0%) in LA group while in OA group 1 patient (2.5%) developed delayed intra abdominal abscess (p=0.283). Cost of surgery was higher in LA group (Rs, 22,500) while in OA group it was Rs, 15,200 (p = 0 . 5) .

Discussion

Most surgeons agree on for use of laparoscope when the patient is a young female with vague lower abdominal pain & it progresses to appendectomy. Similarly in obese patients, laparoscopic appendectomy has shown advantage over the open procedure in terms of a faster post-operative recovery. It is proved that laparoscopic procedures cause less post operative pain than their conventional counterparts. Similarly, incidence of wound infection is less in LA as compared to OA. In one study wound infection rate after LA was 2.3% while in our study it was 5.0%.[17] Some studies have shown increased incidence of post-operative intra abdominal abscess formation after LA.[9,11] In out study it was observed in 3 (5.0%) patients only.

Barkhausen et al in his study has shown that incidence of intra abdominal abscess is same in LA & OA.[8] There is a strong controversy among surgeons regarding the use of laparoscopic procedures in complicated appendicitis (gangrenous or perforated). Tang et al found a post-operative intra abdominal abscess rate of 11% for perforated appendicitis treated by LA & 3% by OA.[47] In generalized peritonitis laparoscopy is not advocated that is why we excluded such patients from our study.

In almost all the literature, the operating time of LA was found to be more than OA. We have made similar observation in our study. The operating time of LA also depends upon the expertise of surgeons and competitiveness of team.[10] The operating time should be calculated from skin excision to wound closure.[18] LA may be more expensive as compared to OA but it offers diagnostic accuracy and among employed patients offers cost savings in terms of early return to work.[2,14,18]

Conclusion

LA is equally safe and can provide less post-operative morbidity in experienced hands as OA. Most cases of appendicitis can be treated laparoscopically. LA is a useful method for reducing hospital stay, post-operative complications and early return to normal activity.

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Answer Picture Quiz

Malanoma: The picture shows classical Hutchinson's Nail Sign. A 37-year-old man presented with a brownish-black nail on the great toe of the right foot. A darkly pigmented linear patch had started to form within the toenail 4 years earlier and had widened and darkened over time. Two months before the current presentation, the dark pigment had begun to involve the hyponychium and the proximal and lateral nail folds. The patient's personal and family medical histories were otherwise unremarkable. The results on routine laboratory testing were within normal limits. An incisional biopsy of the nail matrix showed atypical melanocytes and inflammatory cells along the basal layer of the epidermis, findings consistent with acral lentiginous melanoma in situ. Subungual melanoma, a variant of acral lentiginous melanoma, arises from the nail matrix, most commonly in the great toe or thumb. Hutchinson's nail sign is an important clinical clue to subungual melanoma and is characterized by extension of brown or black pigment from the nail bed, matrix, and nail plate to the adjacent cuticle and proximal or lateral nail folds. The patient underwent amputation of the great toe, and he remains healthy 8 years later.