A PROSPECTIVE RANDOMISED COMPARISON OF SIMPLE LIGATION AND STUMP INVAGINATION DURING APPENDICECTOMY IN AFRICANS

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Abstract

Of 106 African patients undergoing appendicectomy, 56 patients had stump invagination and 50 had simple ligation. The two groups were similar with respect to age, duration of symptoms, incision, degree of appendix inflammation and post-operative antibiosis. Patients whose wounds were drained were excluded. The frequency of wound infection was 8.9% in stump invagination and 6% in simple ligation. The average operating time was slightly shorter in the group of simple ligation. There was no significant difference in the hospital stay. It was concluded that simple ligation is as good as stump invagination when dealing with the appendix stump during append icectomy (JPMA 38: 134,1988).

INTRODUCTION

Appendicectomy is probably the commonest acute abdominal operation that is performed throughout the world today. Surgeons differ as to which of the three traditional methods to adopt in dealing with the appendix stump as each has its own advantages and disadvantages[1]. Kronlein[2] in 1886 was the first to carry out appendicéctomy by simple ligation while Treves[3] and Senn[4] suggested that the appendix stump should be buried. The literature provides conflicting results. Studies in North America[5] showed definite advantage of stump invagination over simple ligation, while others[6,7] in England and Sweden reached the opposite conclusion. The majority of reports except two[7,8] have been based on retrospective studies in Cauca sians. Therefore a similar prospective study in an African population was carried out since appendicitis has become the commonest acute abdominal disease in the sub-Saharan region requiring surgery.

PATIENTS AND METHODS

From December 1st 1984 to February 28th 1987, 106 consecutive African patients, admitted with suspected appendicitis in the Gastroenterology Unit 11 of the Department of Surgery, University of Benin Teaching Hospital, were randomly allocated to one of two groups (A and B). The group A patients were to have the appendix stump ligated and invaginated by a purse string suture of 00 chromic catgut while group B patients were to have simple ligation by the same catgut suture. No antiseptic or diathermy was applied to the appendix stump throughout the trial. Patients who had abdominal drains, or suffered from diabetes mellitus or were on steroids or cancer chemotherapy or had a concomitant intra-abdominal pathology were excluded. All operations were carried out in the same theatre through a skin crease incision in the right iliac fossa splitting the abdominal muscles. The majority of the operations were performed by the resident staff of the grade of Senior Registrar, Registrar and Senior House Officer. All patients were given Ampicillin and Metronidazole for 5 days in the post-operative period. The following data were recorded: opera. ting time, post-operative pyrexia, wound infection, histology of appendix, iengtn 01 hospital stay anu follow-up complicatidns after 6

weeks and 6 months. The X^2 test was used to analyse any statistically significant differences in the studied groups.

RESULT

Of 106 patients included in the study, there were 48 males and 58 females with ages ranging from 15 to 73 years (average 26.3 years). The median operating time for simple ligation was 42 minutes and for stump invagination 50 minutes. Wound infection was regarded as a discharge of purulent material associated with inflammatioñ of the skin edges9. The Overall incidence of wound infection was 7.5 per cent, 6 per cent in group of simple ligation (B) and 8.9 per cent in stump invagination group (A). There was no statistical significance in the rate of wound infection between the two groups ($P > 0.25$). Mean Hospital stay was 7.2 and 7.6 days in the two groups. The incidence of wound infection correlated with the severity of appendicitis; 6 of the 8 patients with wound infection had acute gangrenous appendicitis which was equally distributed in both groups while the remaining 2 occurred in patients with subacute appendicitis in the stump invagination group only. There were no wound infections in recurrent appendicitis or in those patients with normal appendix (Table).

Table. Types of Appendicitis and Wound Infection.

Type	Number of Patients	Stump Invagination	Simple Ligation	Number of wound infection
Acute Appendicitis	66	32 (3)*	34 (3)*	6 Patients
Subacute Appendicitis	9	5 (2)*	4	4 patientts
Recurrent Appendicitis	22	13	9	0
Normal Appendix	8	4	4	0

*Number of patients with wound infection in the groups.

Pelvic or subphrenic abscess and post-operative adhesive ileus did not occur in any of the groups of patients during the period of this trial. Post-operative pyrexia was defined as body temperature higher than 37.5°C for more than 3 days without signs of wound infection7. Malaria was the cause of post-operative pyrexia and was equally distributed between the two groups. The post-operative hospital stay in the group of stump invagination was 7.2 days, and 7.6 days in the group of simple ligation. There were no deaths in both groups during the follow-up period of 6 months.

DISCUSSION

In this prospective series the overall incidence of wound infection of 7.5 per cent is low probably because of the use of ampicillin and Metronidazole. However, the vahie of antibiotics after appendicectomy conflicting results; some reports[10,11] claimed benefits while others[12] showed no demonstrable beneficial effects. In a similar prospective series[8] where no antibiotic was given, the incidence of wound infection was 18.4 per cent and in contrast to 8.6 per cent in another identical prospective series[7] where a similar combination of antibiotics was given. The findings in this study as well as others[1,6-8] suggest that either simple ligation or stump invagination does not affect the rate of wound infection. Nevertheless, a retrospective series in children[5] demonstrated a higher wound infection rate in simple ligation than after invagination. Complications such as pelvic abscess[6,7] subphrenic abscess[6], stump abscess[6] and adhesive ileus[8] which have been reported in the literature were not encountered in this study. Post-operative pyrexia occurred in about 20% patients in both the groups. Having excluded wound or chest infection, malaria was often found to be the cause and responded promptly to antimalarial treatment, Simple ligation produced only a minimal advantage of 8 minutes over stump ligation and the rather long median operating time is a reflection of the relative inexperience of the resident doctors who carried out the majority of the operations. It is concluded from this series that simple ligation is as etfective as stump invagination during appendicectomy in Africans since there is no difference in the rate of wound infection or hospital stay and, because of its simplicity, simple ligation should be more widely practised.

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