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Laparoscopic paediatric surgery: A potential for paradigm shift in developing countries

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ABSTRACT

Background: Until recently, surgical conditions in children requiring operation were managed by the traditional open method. The introduction of the laparoscopic surgical technique seems to be reversing this trend in many centres. We are pioneering some laparoscopic surgery procedures in our environment and the aim of this study was to document our experience with laparoscopic paediatric surgical procedures in a developing country. **Materials and Methods:** This was a prospective analysis of all consecutive children that had laparoscopic surgery at 5 hospitals in Northern Nigeria from June 2008 to February 2011. **Results:** Twenty-one patients had laparoscopic surgeries during the study period with a mean age of 12.5 ± 2.6 years and age range of 10–16 years. There were 14 females and 7 males with a M:F ratio of 1:2. Seven patients (33.3%) had cholecystectomies and 13 (61.9%) had appendicectomies and the remaining one patient (4.8%) had adhesiolysis for partial adhesive intestinal obstruction following previous open appendicectomy. The mean operating time was 89 min with a range of 45–110 min for appendicectomies, 55–150 min for cholecystectomies and the adhesiolysis took 50 min. The mean hospital stay was 2 days except for the conversions that stayed up to 7 days. There were 2 (9.5%) conversions with no mortality. **Conclusion:** We solicit a paradigm shift in our approach to surgical management and implore other centres to embrace laparoscopic surgery in the management of surgical conditions in children since it confers obvious advantages over open surgery.

Key words: Developing nation, laparoscopic paediatric surgery

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INTRODUCTION

Until recently, surgical conditions in children requiring operation were managed by the traditional open method.[1-4] In the developed countries, the practice of laparoscopic surgery has become the gold standard for the management of many abdominal pathologies.[5-8] This is because of the numerous advantages laparoscopic surgery offers.[9] The introduction of the laparoscopic surgery technique seems to be reversing the trend of open surgeries in many centres.[6,10,11] However, there is paucity of literature reporting paediatric laparoscopic surgery in developing countries.

Laparoscopic surgery presents peculiar challenges in the paediatric population. The comparatively small size of children dictates the use of miniature instruments which are not readily available, and their peculiar physiology demands the services of competent paediatric anaesthetists, which remains a challenge in developing countries at the moment.[12]

The problems militating against paediatric laparoscopic surgery practice in the developing countries include lack of trained personnel/expertise and high cost of laparoscopic equipment among others.[13]

We are pioneering some laparoscopic surgery procedures in our environment and the aim of this study was to document our experience with laparoscopic paediatric surgical procedures in a developing country.

MATERIALS AND METHODS

This was a prospective analysis of all consecutive children who had laparoscopic surgery at Adoose Specialist Hospital Jos, Federal Medical Centre, Makurdi, Specialist Hospital Jalingo, Jos University Teaching Hospital, and Federal Medical Centre, Katsina, all in northern Nigeria from June 2008 to February 2011. These surgeries were performed in these various hospitals at the commissioning of their laparoscopic surgery

equipment. The patients had clinical, sonographic and laboratory evaluation to confirm their diagnoses and identify co-morbidities.

All procedures were performed by the authors who are consultants, using three ports for the appendicectomies and 4 ports for the other surgeries.

All consenting patients were included in the study while those with generalized peritonitis were excluded.

Data obtained was analysed for patients' age, gender and indication for surgery, duration of hospital stay and outcome of surgery using Epi-info version 3.3.2.

RESULTS

Twenty-one patients had laparoscopic surgery during the study period with a mean age of 12.5 ± 2.6 years and age range of 10–16 years. There were 14 females and 7 males with a M:F ratio of 1:2.

Seven patients (33.3%) had cholecystectomies and 13 (61.9%) had appendicectomies and the remaining one patient (4.8%) had adhesiolysis for partial adhesive intestinal obstruction following previous open appendicectomy. Five of the seven cholecystectomy patients had background sickle cell disease. The mean operating time was 89 min with a range of 45–110 min for appendicectomies, 55–150 min for cholecystectomies and the adhesiolysis took 50 min. The mean hospital stay was 2 days except for the conversions that stayed up to 7 days. There were 2 (9.5%) conversions resulting from poor definition of anatomy which occurred in one cholecystectomy and appendicectomy, respectively. The laparoscopic procedures generally cost thrice as much as their open counterparts.

We did not encounter any morbidity or mortality and there was no re-admission in this study.

DISCUSSION

The most commonly performed laparoscopic procedure was appendicectomy. The preponderance of appendicectomy in this study is not surprising since it is one of the most commonly performed paediatric surgery procedure in our setting.[14]

Over 30% of the patients had laparoscopic cholecystectomy for chronic calculous cholecystitis, majority of whom were sickle cell disease patients in keeping with other findings.[12,15]

Proficiency in laparoscopic surgery requires a learning curve. The mean operation time in this study was longer than in many reports, alluding to the fact that shorter laparoscopic procedure duration comes with experience.[16,17]

Bleeding and poor definition of anatomy are the common reasons for conversion to open procedure. Other reasons for conversion include inadvertent injury to adjacent structures and technical reasons. There were 2 conversions in this study both due to poor definition of anatomy from dense adhesions.

Laparoscopic surgery technique is feasible in developing countries despite scarce resources. The outcome of laparoscopic paediatric surgery in this study compares favourably with what is obtainable elsewhere.[18,19] We therefore solicit a paradigm shift in our approach to surgical management and implore other centres to embrace laparoscopic surgery in the management of surgical conditions in children since it confers obvious advantages over open surgery.

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