Day case inguinal hernia surgery in Nigerian children: Prospective study

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ABSTRACT

Background: There has been an increase in day case surgery for children worldwide, but there have been few reports of the practice (most of them being retrospective) by many of the surgical sub-specialties in the sub-region. The aim of this study was to document our experience with day case inguinal hernia surgery in a developing economy. **Materials and Methods:** This was a prospective study of uncomplicated inguinal hernias treated as day case at OAUTHC between April 2004 and December 2004. Data were collected and analysed. **Results:** Eighty-eight patients were recruited into the study and none defaulted. There were 88 patients, (M:F = 16.6:1). A majority (n = 54) of the hernias occurred on the right side, while just a few (n = 18) occurred on the left. There were 5 cases of wound infections giving an infection rate of 4.8%. In all, the morbidity following day case inguinal hernia surgery was slight and no patient required readmission into the hospital. **Conclusion:** Day case inguinal hernia surgery in children is safe and well accepted by patients and parents alike. Health institutions in which children with inguinal hernias still queue for long periods for space on the operation list need to adopt day case surgery for inguinal hernia in order to forestall the risk of their obstruction.

Key words: Children, day case surgery, inguinal hernia

INTRODUCTION

In recent years there has been pressure from many sources to increase day surgery, because of the advantages of day case surgical care.[1] This has led to the establishment of a dedicated day case surgery facility at Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC), Ile Ife in December 2003. Since then, the paediatric surgery unit operates exclusive day surgery services for some conditions like inguinal hernia. Despite the increased practice of day case surgery worldwide, there have been few reports of the practice in children in the sub-region.[2-4]

The aim of this study was to document our experience with day case inguinal hernia surgery in children.

MATERIALS AND METHODS

Consecutive children aged zero to 15 years who had uncomplicated inguinal hernias treated as day case at the Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC) between April 2004 and December 2004 were the subjects of this prospective study. Consent was obtained from the hospitals' Research/ Ethics Committee, and from the patients' parents or guardians. Inclusion criteria were age from birth to 15 years, uncomplicated inguinal hernias, and consent from responsible parents or guardians. However, those with obstructed, strangulated or recurrent inguinal hernias and without consent from responsible parents or guardians were excluded from the study.

Preoperative preparation consisted of a careful history and meticulous physical examination. All the patients except those below six months of age were screened for sickle cell haemoglobin (Hb) by electrophoresis (genotype) and also had their packed cell volume (PCV) determined. A packed cell volume (PCV) of 30% and above was accepted as adequate for surgery. In patients with sickle cell anaemia, surgery was performed when the patient was in a steady state and had a PCV of at least 27%.[5] In addition, each patient was assessed for fitness for general anaesthesia by the anaesthesiologist before final placement on the operation list. Patients were brought in fasting on the morning of operation. The patients were reassessed on the morning of surgery to ensure that no contra-indication to surgery had developed since they were last seen in the clinic.

Operations were carried out in the day case theatre commencing at 8.00 a.m. under general anaesthesia

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by face mask (without endotracheal intubation) in all patients. Though expertise for caudal/nerve block procedures was available, these techniques of anaesthesia were not routinely used in children in this centre.

Herniotomy was performed through a transverse incision in the lowest inguinal crease with the medial end above and lateral to the pubic tubercle. Post-operatively, the patients were monitored in the day case recovery room until full consciousness was regained. Those who had no complications to warrant hospital admission were discharged home on syrup or tablets of paracetamol at an 8 hourly dose of 15 mg/kg for three days. Parents were instructed to return to the paediatric surgery unit, if there was any complication at home. Antibiotics were not routinely prescribed. All patients were reviewed in the paediatric surgical outpatient on the 4th, 11th and 32nd post-operative days during which they were carefully examined to rule out wound complications and other morbidity.

The data collected included age of patients, sex, side affected, number of surgical procedures, duration of surgery, status of operating surgeon and wound outcome. Data analysis was done using SPSS Version 10.0 for windows and Computer Program for Epidemiologic Analysis (CPEA). Two sample Chi-square was used to achieve comparison of the mean durations of operation time for both unilateral and bilateral inguinal herniotomies. Statistical significance was defined as $P < 0.05$.

RESULTS

There were 88 patients, 83 were males and five females (16.6:1). Their age range at presentation was three weeks to 15 years with a median of 4.54 ± 3.8 years. The most frequently encountered group of patients was the preschool age (1-5 years old) group. This group constituted more than half (n = 45; 51%) of the study population. Only a few (n = 10; 11.4%) of the patients were adolescent children [Table 1].

There were 16 (18.1%) cases of bilaterality in this study. A significant proportion (n = 11) of the bilateral hernias occurred in infants and toddlers. Sixty percent of the girls presented with bilateral inguinal hernias [Table 2].

A majority (n = 54) of the hernias occurred on the right side while just a few (n = 18) occurred on the left, irrespective of the age group [Table 3].

Unilateral herniotomy was performed in 72 (81.9%) patients and bilateral herniotomy in 16 others. The mean duration of surgery in patients with unilateral hernias was 41.0 minutes (range = 25-90 minutes) while the mean duration of surgery in those with bilateral hernias was 58.0 minutes (range 45-90 minutes) ($P = 0.982$) [Table 4]. In all, the trainee surgeons operated on 82 (93.2%) children, while the consultant surgeons operated on the remaining six.

The overall morbidity was slight and no mortality was recorded in this series. No patient required readmission after discharge. No recurrence of inguinal hernia was noticed in this study throughout the period of follow-up. There were five cases of wound infections giving an infection rate of 4.8% (5/104 procedures). The wound infections were generally minor and responded readily to removal of subcuticular stitch and wound dressing.

Table 1: Age distribution of children in the study

Age (in years)	N	%
0 - 1	15	17.0
> 1 - 5	45	51.1
6 - 10	18	20.5
11 - 15	10	11.4

Table 2: Distribution of hernias according to sex of the patients studied

Sex	N	Type of hernia			
		Unilateral		Bilateral	
		N	%	N	%
Male	83	70	84.3	13	15.7
Female	5	2	40.0	3	60.0

Table 3: Side of hernia in different age groups

Age (In years)	N	Side of hernia					
		RIH		LIH		BIH	
		N	%	N	%	N	%
0 - 1	15	7	8.0	2	2.3	6	6.8
> 1 - 5	45	30	34.0	10	11.4	5	5.7
6 - 10	18	10	11.4	4	4.5	4	4.5
11 - 15	10	7	8.0	2	2.3	1	1.1

Table 4: Mean duration of operation (in minutes) of hernias in the various age groups

Age (in years)	Mean duration of operation (Mins)			*P*-value
	N	Unilateral hernia	Bilateral hernia	
0 - 1	15	37.0	54.0	χ^2=0.169
> 1 - 5	45	39.0	57.0	
6 - 10	18	45.0	60.0	*P*=0.982
11 - 15	10	45.0	61.0	

DISCUSSION

Day case inguinal hernia surgery (DCIHS) in paediatric practice is now well established in the developed countries.[6] Similarly, there have been successful reports of DCIHS and benefits in children in our environment.[2-4]

The results of the study showed that infants and preschool aged children were those commonly diagnosed with inguinal hernia. This finding is in agreement with those of other studies.[2,7] The small number of school age and adolescent children found in the study compared with the findings of others.[2,7] It is possible that fewer hernias were encountered in those age groups because of early repair of inguinal hernias in early childhood in order to obviate the high risk of incarceration, which is very common particularly in early life.[8]

The finding that childhood hernias were more preponderant in males was in agreement with similar observations in earlier series.[2,3] Similarly the incidence of bilaterality observed in this study (18.1%) agreed with the range of 15 to 25% usually reported in most large studies.[9-11] The high rate (60%) of bilateral hernias among the girls confirms the reports in previous studies,[7,12] but contrasts with the study by Yawe *et al*.[2] which reported equal incidence of bilateral hernias in both boys and girls.

The mean duration of surgery for the repair of paediatric inguinal hernias was short and was comparable to those of other studies,[2,13] and the difference in mean duration of surgery between bilateral and unilateral operation in this study was not statistically significant.

Most of the operations were performed by surgical trainees without necessarily increasing the morbidity of surgery. The morbidity in this study was slight and was mainly due to minor wound infections, and this agrees with previous studies.[14-16]

In conclusion, day case inguinal hernia surgery in children is safe and well accepted by patients and parents alike. We recommend that DCIHS should be adopted in paediatric surgical facilities where inguinal hernias may cause prolonged waiting lists.

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