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ORIGINAL ARTICLE

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Contralateral exploration is not mandatory in unilateral inguinal hernia in children: a prospective 6-year study

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Abstract Contralateral exploration (CE) in children with a unilateral inguinal hernia (IH) is still controversial. To define the necessity of CE in unilaterally-presenting IH, all patients who had been operated upon unilaterally in a 6-year period and were followed for 4–10 years had annual evaluations for a contra-lateral IH. Comparison of the frequency of different variables was done by chi-square test. Of 650 patients aged 1 month–12 years, 521 (3.6%) developed a contralateral IH. There was no significant difference in occurrence in the different sex and age groups. There was a significant difference in the side of presentation: patients who presented with a left-sided hernia had a greater chance of developing a contralateral IH ($P = 0.006$). The finding of a patent processus vaginalis (PPV) in the literature is usually present in over 35% of cases, while the occurrence of a contralateral hernia is usually seen in less than 15% of cases. In our study this rate was also very low (3.6%). Therefore, it seems that most PPVs will close or remain asymptomatic and only a few will lead to IHs, so that routine CE does not seem justified.

Keywords Unilateral inguinal hernia · Contralateral exploration · Prospective study · Patent processus vaginalis

Introduction

Contralateral exploration (CE) in children presenting with a unilateral IH is controversial. In 1951 Duckett advised diligent examination of the opposite side when a single hernia is present, and suggested CE if there is slight evidence of a hernia [1]. Since the 1955 report of Rothenberg and Barnett [12], routine CE has been a matter of debate: some studies support routine or selected CE [3, 4, 6, 9, 11] while others have concluded that it is not justified [5, 7, 8, 10, 14–17]. This study was undertaken to determine the necessity of CE based on follow-up of patients after unilateral IH operation.

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Materials and methods

A prospective study was done in a 6-year period (1990–1996) in infants and children undergoing IH repair. The criteria for diagnosis were a history of a groin mass and positive findings such as a reducible scrotal or inguinal mass, cord thickening, or a silk-glove sign on physical examination.

An inguinal herniotomy was performed unilaterally regardless of the patient's sex, age, and side of involvement unless obvious signs of a hernia were evident on the contralateral side, in which case bilateral repair was carried out. Those who had a non-communicating hydrocele, bilateral IH, severe ascites, collagen disease, hydrocephalus with a ventriculoperitoneal shunt (VPS), or did not return for follow-up were excluded from the study. Of 650 operated patients aged 1 month–12 years, 65 (10%) had bilateral IH and 56 did not return for annual evaluation; 8 were excluded because of associated problems (severe ascites, VPS). The patients were evaluated for signs and symptoms of an IH on the contralateral side annually for 4–10 years post-operatively.

The chi-square test was used for statistical analysis to compare the metachronous incidence of contralateral IH on each side in different age groups and males and females. P values less than 0.05 were considered significant.

Results

Of the 521 infants and children assessed, 466 (89%) were males. Right-sided involvement was twice as frequent (Table 1). Nineteen (3.6%) developed a contralateral hernia 1–92 months after herniotomy. The relation of the occurrence to different variables is shown in Table 2.

No significant difference was observed in the different age and sex groups, however, there was a significant difference in relation to the side of involvement: those who presented with left-sided IHs had a greater chance of developing a contralateral hernia: 12/177 (6.8%)

Table 1. Distribution of sex, side of hernia, and age groups (n = 521 unilateral inguinal hernia)

Sex	
Male	466 (89.4%)
Female	55 (10.6%)
Side	
Right	344 (66%)
Left	177 (34%)
Age (months)	
≤ 12	127 (24.3%)
> 12	394 (75.7%)

Table 2. Characteristics of patients who underwent unilateral herniorrhaphy

	Contralateral metachronous hernia		
	Yes	No	*P* value
Sex			
Male	16/466 (3.4%)	450/466 (96.6%)	0.449
Female	3/55 (5.5%)	52/55 (94.5%)	
Age (months)			
≤ 12	5/127 (3.9%)	122/127 (96.1%)	0.8410
> 12	14/394 (3.5%)	380/394 (96.5%)	
Operated side			
Left	12/177 (6.8%)	165/177 (93.2%)	0.0061
Right	7/344 (2.0%)	337/344 (98%)	

patients who had a left-sided IH developed a right-sided metachronous hernia ($P = 0.006$) (Table 2).

Discussion

To justify CE, two types of studies are available, the first based on detecting a patent processus vaginalis (PPV) on routine exploration or some other diagnostic procedure (i.e., laparoscopy and diagnostic pneumoperitoneum) [3, 4, 6, 9, 11]. The second type observed the occurrence of a true hernia in the follow-up period.

The PPV is a potential factor for IH development, but is not a true hernia. The natural history is spontaneous closure in the majority of cases (60% by 2 years of age). After 2 years of age the incidence of PPV is 40%, and one-half of these (20%) may become IHs at some time during life [13]. It thus appears that not all PPVs will develop into IHs, and some will remain asymptomatic for life.

In studies based on routine CE the frequency of PPV is usually more than 35% [3, 4, 9], while in those based on follow-up (range 6 months–11 years and 5 months–17 years) the frequency of a metachronous IH is usually less than 15% [14, 16]. Thus, routine CE does not seem to be justified.

We observed a very low rate of metachronous contralateral IH (3.6%). In this study, no significant difference existed between sex ($P = 0.44$) and age groups ($P = 0.84$). However, a significant difference between the side of presentation ($P = 0.006$) was observed: the chance of developing a metachronous contralateral hernia is greater in left-sided IH. This phenomenon has already been noted by Given and Rubin [2] and McGregor et al. [8]. Nonetheless, although left-sided presentation can be a risk factor, the frequency of a contralateral IH is not high enough (6.8%) to justify routine right-sided exploration.

The following conclusions can be drawn from this study: (1) routine CE in infants and children who present with a unilateral IH is not necessary; and (2) the history and physical examination are reliable tools for making the decision for unilateral or bilateral operation.

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