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One third of patients with a unilateral palpable undescended testis have a contralateral patent processus

Himanshu Aggarwal[a,*], Barry A. Kogan[a,b], Paul J. Feustel[c]

[a]*Division of Urology, Albany Medical College, Albany, NY 12208, USA*
[b]*Urological Institute of Northeastern New York, Albany, NY 12208, USA*
[c]*Center for Neuropharmacology and Neuroscience, Albany Medical College, Albany, NY 12208, USA*

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Abstract

Purpose: The purpose of this study was to determine the incidence and predictive factors associated with a contralateral patent processus vaginalis in boys with a unilateral palpable undescended testis.

Methods: We retrospectively reviewed the records of 77 consecutive boys (median age, 15 months; range, 5 months to 17.7 years) who had undergone orchiopexy for a unilateral palpable testis. At inguinal orchiopexy, an 8F feeding tube and a 70° adult cystoscope lens were placed into the peritoneum through the hernia sac, and the contralateral internal ring was inspected. The clinical factors that might predict the presence of a contralateral patent processus vaginalis were determined.

Results: The overall rate of a contralateral patent processus vaginalis was 34% in those with a significant ipsilateral hernia sac. After considering age, side, prematurity, location, and volume of the undescended testis, only the boys with a testis distal to the external ring compared with those with testes lying within the inguinal canal had statistically increased odds of a patent contralateral processus vaginalis (odds ratio, 3.1; 95% confidence interval, 1.08-9.08).

Conclusion: Approximately one third of boys with a unilateral palpable undescended testis will have a contralateral patent processus vaginalis as determined by transinguinal laparoscopy. The rate is higher (52%) if the undescended testis was distal to the external ring. Both the etiology and significance of this contralateral finding are unknown.

There have been several studies of the rate of contralateral patent processus vaginalis in children with unilateral clinical communicating hydrocele/hernia. Approximately 5% to 29% of children who undergo repair of unilateral inguinal hernia have been shown to present with clinically significant contralateral hernia later in life [1-6]. The presence of a contralateral patent processus vaginalis in children presenting with a unilateral hernia can be safely and effectively evaluated by CO_2 insufflation (Goldstein test) [7], transabdominal laparoscopy [8], or transinguinal laparoscopy [9-11] during unilateral inguinal hernia repair. Different studies have shown a wide range of patency rate for contralateral processus vaginalis in patients undergoing repair of unilateral inguinal hernia, varying from 11% to 74% [10-16]. The incidence of an ipsilateral patent processus vaginalis associated with a unilateral palpable undescended testis ranges from 62% to 90% [17-20]. However, the rate of a

* Corresponding author. Tel.: +1 518 262 3296; fax: +1 518 262 4784.
E-mail address: aggarwh@mail.amc.edu (H. Aggarwal).

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contralateral patent processus vaginalis is unknown. In children with a nonpalpable testis undergoing diagnostic laparoscopy, the incidence of a contralateral patent processus has been shown to be approximately 20% [21,22]. In the specific subgroup of patients with a palpable undescended testis, the incidence of a contralateral patent processus is not clear.

The aim of this study was to determine the incidence of and any predictive factors associated with a contralateral patent processus vaginalis discovered during orchiopexy of a unilateral palpable testis.

1. Materials and methods

Our institutional review board approved the study. We retrospectively reviewed the operative records and clinical charts of 90 consecutive patients, who had undergone orchiopexy for a palpable undescended testis, from June 2007 to May 2010. Patients with unilateral or bilateral nonpalpable testes were not included, and 13 patients with bilateral palpable undescended testis or those with an obvious contralateral inguinal hernia were excluded. Final analysis included 77 patients. All children were examined in an office setting and found to have a palpable undescended testis. This finding was confirmed under general anesthesia before surgery. None of the patients had undergone a preoperative imaging study of the groin in our center. None of the patients had received medical therapy before their operation.

Orchiopexy was performed using an inguinal incision. The size of the undescended testis was measured using a ruler by the same individual (BAK) in the same manner as described in previous studies [23]. After localization of the testis, a careful dissection of the ipsilateral hernia sac, if present, was done from the cord structures. The hernia sac was dissected sufficiently to allow full mobilization of the testis. The initial 6 patients then underwent a modification of the Goldstein test [7] to determine the presence or absence of a contralateral patent processus vaginalis. The test was performed by introducing an 8F feeding tube through the ipsilateral hernia sac into the abdominal cavity and distending the peritoneal cavity with CO_2. The contralateral groin and the scrotum were then palpated for crepitance. The presence of crepitance constituted a positive test result. All patients after the first 6 underwent transinguinal laparoscopy that included introduction of the 8F feeding tube, followed by a 70° adult cystoscope lens. Carbon dioxide insufflation was accomplished at a flow rate of 1 L/min to a pressure of 15 mm Hg. The contralateral internal ring was visualized and inspected to determine patency (Fig. 1). In cases where the patency was unclear, the contralateral inguinal canal and scrotum were palpated for evidence of crepitance, and the internal ring was inspected for air bubbles after pressure on the contralateral inguinal area, a sign that carbon dioxide had entered the groin. Once visualization was completed, the abdomen was desufflated, and the catheter and scope were removed. The ipsilateral hernia sac was then ligated. Univariate logistic regression followed by a stepwise multivariate logistic regression analysis was used to estimate the degree of association of potential predictor variables with the presence of contralateral patent processus vaginalis.

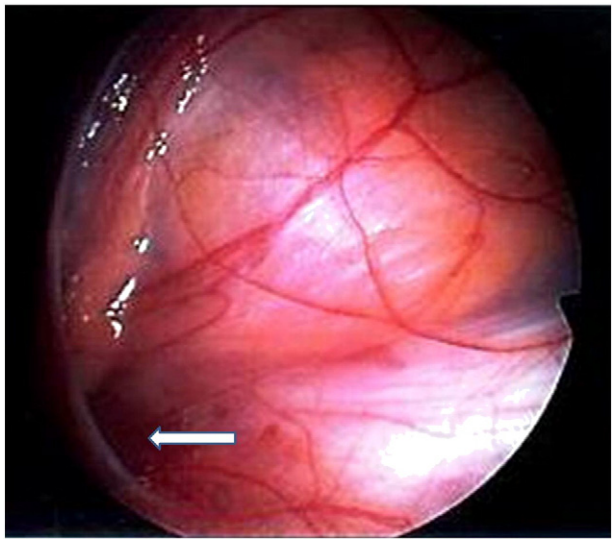

Fig. 1 Laparoscopic view of a right patent contralateral processus vaginalis as viewed using a 70° lens passed through the left internal ring.

2. Results

We identified 77 consecutive boys with a median age of 14.9 months (range, 5.1 months to 17.7 years) who underwent a unilateral orchiopexy for a palpable undescended testis. The patient characteristics are outlined in Table 1. In 6 cases, the ipsilateral hernia sac was either absent or too tiny to pass an 8F feeding tube into the peritoneum. The ages of these patients were the same or slightly older than the other patients (7, 10, 39, 67, 73, and 89 months). The overall rate of a contralateral patent processus vaginalis (visually, along with palpation for carbon dioxide, as described above) was 34% in those with a significant ipsilateral hernia sac. The relationship of various patient characteristics to a contralateral patent processus vaginalis is shown in Tables 2 and 3. There was no difference between groups related to prematurity. There was also no difference in the rate of patency based on age ($P = .6$), but the odds of finding a patent contralateral processus vaginalis trended lower by a factor of 0.83 with every year of age ($P = .193$). The oldest patient with a patent contralateral processus vaginalis was 5 years, and of 24 patients with patent contralateral processus, only 5 patients were older than 2 years. Similarly, there was no statistical difference in rate based