European Review for Medical and Pharmacological Sciences 2015; 19: 2949-2951

Ascending testis following inguinal hernia repair in children

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Abstract. – OBJECTIVE: Failure to replace the testes in the scrotum during hernia repair leads to iatrogenic undescended testes. At other times, the testes may spontaneously move back to the inguinal area after being placed in the scrotum, thus resulting in ascending testes. The cases in this study were assessed.

PATIENTS AND METHODS: Records of 910 boys operated due to inguinal hernia were assessed retrospectively. Following hernia repair, the testes were placed in the scrotum. After the operation, all the testes were checked for being in the scrotum. They were called for follow-up after the operation. Their testes were checked for remaining in the scrotum.

RESULTS: Ascending testes were detected in 4 (0.43%) of the patients. These patients had scrotal hypoplasia and/or retractile testes. Their age ranged between 1-3 years. Ascending testes were bilateral in 2 patients, and on the right side in 2. Human chorionic gonodotropin (hCG) was initiated in 3 patients. Two of them improved. Two underwent scrotal orchiopexy.

CONCLUSIONS: These patients may benefit from hCG in the early postoperative period. Later, scrotal orchiopexy may be needed. Patients who have retractile testes or scrotal hypoplasia in addition to inguinal hernia need orchiopexy together with herniorrhaphy.

Key Words:
Inguinal hernia, Herniorrhaphy, Ascending testis, hCG, Scrotal orchiopexy.

Introduction

Inguinal hernia repair is the most common operation performed by pediatric surgeons[1]. Although complications are rare, they may be serious. One such complication is iatrogenic undescended testes (IUT). The problem is believed to be related to a failure to place the testes, which are ascended during herniorrhaphy, back in the scrotum after the operation[2]. On the other hand, some testes may ascend spontaneously and move out of the scrotum after being placed in at the end of herniorrhaphy. Some patients reported previously as IUT may have occurred in this way. We retrospectively assessed patients who experienced ascending testes following herniorrhaphy in our clinic.

Patients and Methods

Records of 910 boys operated in the Pediatric Surgery Clinic of our hospital due to inguinal hernia between August 2003 and December 2011 were assessed retrospectively. Boys with inguinal hernia who did not have undescended testes were included in the study. Inguinal hernia repair was performed under caudal anesthesia by using the Mitchell-Banks method[3]. After tying hernia sacs at the internal ring level, the testes were pulled into the scrotum. The distal sac was routinely not removed in any patient. After the operation, all testes were checked for being in the scrotum. Patients were called for follow-up after an average of 4 days following the operation (between 3-5 days). Their testes were checked for remaining in the scrotum. Patients whose testes were in a higher localization than the scrotum (except one) were initially administered 100 IU/kg (1500 IU/dose maximum) intramuscular hCG two days weekly for 3 weeks[4]. Patients who did not benefit from hCG therapy underwent scrotal orchiopexy in the late stage as defined by Bianchi[5]. The testis was placed into a dartos pouch.

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Results

The median patient age was 2 years (ranging between 2 months and 15 years). Ascending testes were detected in 4 (0.43%) of the patients (Table I). Their age ranged between 1 and 3 years. The localization of testes varied between the upper end of the scrotum and the external ring level. The first patient was aged 1 and had bilateral inguinal hernia. His scrotum was hypoplasic. Bilateral herniorrhaphy was performed. Bilateral ascending testes were detected in the early postoperative stage. Bilateral scrotal orchiopexy was performed in postoperative month 6. The second patient was 2 years old, and had scrotal hypoplasia and bilateral retractile testes. Bilateral herniorrhaphy was performed. Ascending testes occurred in the early postoperative stage. Human chorionic gonodotropin (hCG) was initiated on postoperative day 5 and both testes descended to the scrotum. The third patient was 3 years old, and had right inguinal hernia and retractile testis. Following right herniorrhaphy, the right testis was found to be ascending. After hCG treatment, the testis did not descend to the scrotum. Right scrotal orchiopexy was thus performed on postoperative month 6. The fourth patient was aged 2 and had retractile testis and scrotal hypoplasia. Following right herniorrhaphy, he also had ascending testis on the right. hCG was initiated on postoperative day 5 and the testis descended to the scrotum. No problems were seen in the follow-up of patients.

Discussion

Inguinal hernia repair comprises 30-50% of all operations performed in pediatric surgery clinics[6]. IUT is an uncommon but serious complication of inguinal hernia repair. Even though its prevalence is given as 0.2% in the literature, it is possible that not all cases are reported[3]. During the dissection of the hernia sac, the testes are sometimes pulled out of the scrotum with the traction applied on the cord and vessels, and are left in a high scrotal position around the external ring of the inguinal canal when not placed back in the scrotum at the end of herniorrhaphy. IUT is generally believed to develop in this way[7,8]. However, we observed in our patients that even when the testes are pulled back into the scrotum after herniorrhaphy, they may spontaneously move up and be unable to descend back into the scrotum due to the adhesions between the testes and surrounding tissue after surgery. The elevation of the testes after herniorrhaphy is attributed to their being retractile[7,9]. The presence of retractile testes among our patients corroborates this view. We believe that scrotal hypoplasia is another factor. At least some of the IUT cases reported previously may have developed in this way, and not all undescended testes seen after herniorrhaphy are iatrogenic.

Retractile testes are pulled due to cremasteric muscle hyperactivity or changes in the cremasteric muscle[10]. This should be noted before surgery in patients who have inguinal hernia accompanied by retractile testes. Retractile testes may not be detected with an examination particularly following caudal anesthesia. For patients who are diagnosed before surgery, the cremasteric muscle may be fully dissected at the same time as herniorrhaphy, or scrotal orchiopexy may be performed[7,9].

Conclusions

hCG therapy may be successful in making the testes descend into the scrotum in some patients if ascending testes are detected in early postoperative stages. Scrotal orchiopexy will be required for patients who do not benefit from hCG therapy or those who are diagnosed late. The risk of post-herniorrhaphy ascending testes is higher in patients who have scrotum hypoplasia or retractile testes together with inguinal hernia, and these patients need simultaneous orchiopexy.

Table I. Clinical data.

Patient	Age (year)	Side	hCG tretment	Scrotal orchiopexy
1	1	Bilateral	Unapplied	+
2	2	Bilateral	Testes descended	-
3	3	Right	Testis undescended	+
4	2	Right	Testis descended	-

Conflict of Interest

The Authors declare that there are no conflicts of interest.

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