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ORIGINAL ARTICLE

The very large recurrent postoperative scrotal hydrocele after pediatric inguinal hernia repair: a rare problem

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Abstract
Purpose To report the rare problem of a very large recurrent postoperative scrotal hydrocele after pediatric inguinal hernia repair.
Methods From July 1969 to December 2007 inclusive, the charts of five boys mean age 8 years (range 7 months–16 years) with very large recurrent postoperative scrotal hydroceles were reviewed (Research Ethics Board approval 1000007698).
Results In each case, there was a very large recurrent postoperative symptomatic scrotal hydrocele (3 right, 1 left, 1 bilateral). Their ages at the time of these recurrences were between 11 and 16 years; they were repaired within 2–18 months. The first four were repaired via a groin incision on finding no recurrent inguinal hernia. The last two were repaired through a scrotal approach because a groin ultrasound showed no recurrent inguinal hernia. There was 1 second recurrence which was successfully repaired. A followup of 1½–9 years revealed no recurrent hydrocele.
Conclusions The incidence of a very large recurrent symptomatic postoperative scrotal hydrocele after repair of a pediatric inguinal hernia is 0.06% and usually occurs in older boys. If ultrasonography of the groin is normal (since a recurrent inguinal hernia seems unlikely in such cases), this repair can usually be done via a scrotal approach.

Keywords Recurrent · Pediatric · Scrotal · Hydrocele

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Introduction

Most postoperative scrotal hydroceles after pediatric inguinal hernia repair are small, asymptomatic and disappear within a few months [1–6]. There are, however, the rare very large (tense, fist-size, testicle not palpated beneath or behind) recurrent postoperative scrotal hydroceles which are symptomatic and do not disappear. This article presents and discusses five such patients.

Materials and methods

More than 7,500 inguinal hernia patients from the practices of three staff surgeons at The Hospital for Sick Children (HSC), Toronto, Canada, were reviewed from July 1969 to December 2007. Five boys, mean age 8 years (range 7 months–16 years), had six very large recurrent postoperative symptomatic scrotal hydroceles (3 right, 1 left, 1 bilateral), which followed their inguinal hernia repair and required re-operation. Their preoperative, operative, and postoperative data were evaluated. This study was approved by the HSC Research Ethics Board (1000007698).

Results

Original inguinal hernia

The mean age at which these five boys were first seen with their original inguinal hernias and scrotal hydroceles was 7.5 years (range 7 months–15 years). They were all asymptomatic and their original hernias and scrotal hydroceles were repaired within 2 years. The operations were all done under general anesthesia and as outpatients by one

of the staff surgeon authors. There were six indirect inguinal hernias [3 incomplete, 2 complete (communicating) and 1 small] which were all repaired by high ligation of the sac at the internal ring using synthetic suture (Dexon,[1] Vicryl[2]). The two complete hernias communicated with their scrotal hydroceles via a very narrow sac, preventing any fluctuation in the size of the hydrocele.

There were four large (cannot palpate testicle beneath or behind), and two moderate-sized, scrotal hydroceles; five were opened at the top to evacuate the fluid and one was partly excised. There were no immediate postoperative complications.

Recurrent scrotal hydrocele

After the first hernia operation, there was a mean followup of 7 years (range 10 months–13.5 years), during which time postoperatively there was almost immediately (except after 13.5 years in the 7 month old) noted a very large recurrent symptomatic scrotal hydrocele. This recurrent hydrocele was somewhat uncomfortable because of its size, and did not change in size during the postoperative observation time until re-operation, which was a mean 10 months (range 2–18). The five boys' mean age at re-operation was 13.5 years (range 11–16). The boy (age 15 years) with the bilateral recurrences had his two re-operations separated by 1 year. The first four very large recurrent postoperative scrotal hydroceles were repaired via groin re-exploration finding no recurrent inguinal hernia; the remaining two were repaired via a scrotal incision, after a groin ultrasound (US) was normal. Regardless of the route of exploration at the re-operation, five of the six very large recurrent postoperative scrotal hydroceles had as much as possible of the hydrocele lining excised, and after that four of the five had the remaining hydrocele lining sutured (with the same synthetic suture material) inside out and behind the testicle (bottle, bottling, bottleneck operation [1, 6, 7]). One boy (age 15 years) only had his hydrocele sac partly excised. The only significant immediate postoperative complication, aside from the frequent temporary small recurrent postoperative scrotal hydroceles in each case, was 1 immediate very large recurrent postoperative symptomatic scrotal hydrocele in the 15-year-old boy, whose first very large recurrent postoperative scrotal hydrocele was the only one treated with partial excision of the sac. This second recurrence was successfully repaired by almost complete excision of the sac and bottling the remainder. All the recurrent scrotal hydroceles appeared grossly normal at operation; however, all of the excised hydrocele tissue was routinely sent for the usual histopathological examination with negative results. The testicle and epididymis within each recurrent scrotal hydrocele were grossly normal. There were no long-term postoperative complications; the scrotal sacs and testicles have remained normal in appearance and size. The mean follow-up period was 5 years (range 1½–9); the follow-up after the second recurrence was 2½ years.

Discussion

Scrotal hydroceles are very common in pediatric surgery. In the largest reported series of pediatric inguinal hernias [8], there was a 19% incidence of associated scrotal hydroceles; most (60%) of these hydroceles were right-sided, 33% left, and 7% bilateral. The newborn's asymptomatic (so-called pure) scrotal hydrocele (with no evidence of an associated inguinal hernia) usually spontaneously disappears by 1–2 years of age [1–5]. Boys beyond the newborn age with the late onset of a scrotal hydrocele are considered to have an accompanying inguinal hernia and are therefore operated upon. In this report, the rare problem of a very large recurrent postoperative scrotal hydrocele (tense, fist-size and testicle cannot be palpated beneath or behind) after pediatric inguinal hernia repair has not been reported in the literature [1–5], nor was it noted in any of the recent pediatric surgery [9], pediatric urology [7] and adult urology [6] textbooks since 2002. It is indeed rare, having occurred only twice in a series of 6,361 pediatric inguinal hernias [8].

Aside from the 7-month-old infant, the remaining four boys all presented with their original inguinal hernias and scrotal hydroceles after 8 years of age. The inguinal and scrotal operative pathology in all five boys was not unusual, nor was their operative repair. In all male inguinal hernia repairs, regardless of age, the authors routinely open the external ring. The distal sac (if present) is usually excised. If there is a small scrotal hydrocele, it is usually opened and if it is large, part or most of it is excised. This operative approach as such has not caused any specific complications. Moreover, these five with six very large recurrent postoperative symptomatic scrotal hydroceles have not prompted the authors of this article to change their operative approach for a pediatric male with an inguinal hernia with or without an associated scrotal hydrocele.

When looking for an apparent cause for this rare recurrence, one must focus on how the original scrotal hydrocele was surgically treated. Pediatric surgeons treat the distal hernia sac and/or scrotal hydrocele in a variety of ways from doing nothing to almost complete excision. In this series, all of the five boys had minimal surgery to the scrotal hydrocele at the first operation, and at re-exploration, there was no recurrent inguinal hernia (thought to be

[1] Polyglycolic acid, Davis & Geck.

[2] Polyglactin 910, Ethicon.

the cause preoperatively). It is speculated, therefore, that the minimal surgery to the scrotal hydrocele at the first operation was the cause of the recurrence. The big question, which we cannot answer, is why does not this rare type of recurrence happen more often?

In reference to the treatment of the very large recurrent postoperative scrotal hydrocele, there does not seem to be any rationale to aspiration (single or repeated), nor to the injection of sclerosing agents [1]. Moreover, the fact that five of the six very large recurrent postoperative scrotal hydroceles in this series appeared immediately and were all symptomatic, made their repair necessary sooner than later. The easiest operative approach for this problem was a midline scrotal incision, which was done in the last two re-operations after the first four re-operative approaches revealed no recurrent inguinal hernia. Before the last two scrotal re-operations, a groin US looking for a narrow recurrent indirect inguinal hernia sac was negative. The treatment of choice (based on what was originally done to the first scrotal hydrocele) seemed to be almost complete excision of the hydrocele lining, followed by the bottling (bottle, bottleneck) operation of the remaining sac around the testicle [1, 6, 7]. After a second similar immediate symptomatic recurrence was more aggressively treated by an almost complete excision and bottling of the remaining sac around the testicle, all of the six very large recurrent postoperative scrotal hydroceles were cured with a mean follow-up of 5 years (range 1½–9). It may be that the almost complete excision of the very large recurrent postoperative scrotal hydrocele sac (more than bottling the residual sac [1, 6, 7]) was the key to success in these older pediatric patients.

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