



The treatment of abdominoscrotal hydrocele: Is there a role for nonoperative management?



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ABSTRACT

Background/Purpose: Abdominoscrotal hydrocele (ASH) is an uncommon entity. Until now, the recommended treatment has been surgical. There is only one successful case of nonoperative management reported in literature. We report the largest series of children with ASH, and provide evidence in support of an initial nonoperative approach.

Methods: This study is a retrospective chart review of patients treated from 1994 to 2015 with ASH at a single institution.

Results: Thirty patients were identified with ASH, with 29 included in the analysis. Nine patients (30%) had operative management with an 80% complication rate.

Twenty out of 29 patients (70%) were initially managed expectantly. Sixteen (80%) had resolution of their abdominal component, twelve (60%) of which went on to have full resolution of ASH. Four patients (20%) in this group required operative management of ASH.

Conclusions: ASH should be included in the differential diagnosis of pediatric scrotal swelling. The “Springing Back Ball Sign” should be used as a screening tool. If it is positive, a *dynamic* ultrasound should be performed to confirm the diagnosis. We recommend observation as the first step in the management of uncomplicated ASH. It can result in avoidance of operation or at least lower the complication risk significantly if operation is required.

Level of Evidence: 4.

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Abdominoscrotal hydrocele (ASH) is an uncommon entity in the pediatric population. However, it has been reported more frequently in recent years. ASH is an hourglass hydrocele that originates in the scrotum and extends via the inguinal canal and internal ring into the extraperitoneal cavity [1,2]. Until now, the recommended treatment has been surgical. There is only one case report describing an ASH being followed expectantly to complete resolution [3,4]; surgical resection of an ASH can be difficult and lead to complications [2,3]. We report the largest single institution ASH case series to date, especially providing insight into outcomes of nonoperative approach in the management of ASH.

1. Material and methods

We performed a retrospective chart review of pediatric patients treated from 1994 to 2015 for ASH at British Columbia Children's Hospital, Vancouver, Canada. Thirty patients were identified with ASH during the study period; 29 were included in the analysis as one patient was lost early to follow up.

Diagnosis was either made clinically, based on physical exam findings of Springing Back Ball Sign and palpable abdominal mass (3 patients, 10%) with no imaging, or by ultrasound to confirm the clinical suspicion of ASH (21 patients, 72%); the remaining patients had the diagnosis of ASH made for the first time intraoperatively by direct visualization (5 patients, 17%).

In 9 out of 29 patients (30%), operative management was chosen (based on surgeon preference) with no observation period, and the remaining 20 patients (70%) were initially managed expectantly; patients in the former group will be referred to as the operative arm and the latter as the nonoperative arm in this report.

In the operative arm, reasons for choosing surgery as the first step in management were: a) diagnosis of ASH not made until the operation ($n = 4$), b) practice of the surgeon being early operative management of ASH ($n = 2$), c) tense scrotal component ($n = 1$), d) ASH complicated by bladder displacement and urinary tract infection ($n = 1$), and e) having previous repair of what was initially believed to be an inguinal hernia but recurred as ASH 8 years after the first repair ($n = 1$).

2. Results

Mean age at diagnosis was 21 months (range from 3 to 108 months), with 60% ($n = 17$) of patients being younger than 1 year of age when diagnosis of ASH was made. The median age at diagnosis was 8 months. Thirteen (45%) patients had left-sided ASH, fifteen (52%) had right-

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sided ASH and one was bilateral. Twenty-seven out of 29 patients were assessed for presence of Springing Back Ball Sign, 24 of whom (89%) had a positive sign.

Nine patients (30%) had surgery as the initial step in their management. Seven (78%) of these patients had full resection and resolution of ASH; one patient had resolution of abdominal component while awaiting the operation, requiring only a simple hydrocelectomy. The remaining patient had resection of the inguinal scrotal portion only, with the abdominal component being observed to resolution postoperatively.

Seven of the nine (78%) children in the operative arm had complications, several of which were major. These included one orchidectomy for injury to the vasculature intra-operatively, one incidental finding of hypoplastic testicle 3 years post ASH repair, infected hematoma postoperatively, postoperative scrotal hydroceles, and persistent intraabdominal cyst postmarsupialization of abdominal component of ASH.

Expectant management was chosen as the first step in treatment of 20 patients (70%), twelve (60%) of whom were followed to complete resolution of their ASH with observation only; four patients (20%) had resolution of the abdominal component with observation, but persistent scrotal portion requiring simple hydrocelectomy; four out of these 20 patients (20%) had persistence of ASH requiring full operative resection. Overall, 16 out of the 20 patients (80%) in the nonoperative arm had resolution of their abdominal component.

A summary of the outcomes of the patients in both operative and nonoperative arms is included in Fig. 1.

In the nonoperative arm, *complete* resolution of ASH was determined based on clinical exam showing disappearance of the hydrocele (7 patients, 58%), resolution of the hydrocele reported by parents on follow up phone call (2 patients, 16%), or documentation of both resolved abdominal and scrotal components on ultrasound (3 patients, 25%). Patients in this arm of the study were being followed in 3- to 6-month intervals with physical examinations and serial ultrasounds.

Table 1 summarizes the number of months to resolution or operation in the nonoperative arm patients.

Twenty-one patients (72%) in this study required surgery at some point; nine of these children were in the operative group for resection

of ASH. In the nonoperative arm, 4 needed surgery for a persistent ASH, 4 needed a procedure for persistent scrotal hydrocele, and 4 required orchidopexy for undescended testicle despite resolution of ASH. Five out of 21 patients (24%) who had surgery were described intraoperatively to have a dilated internal ring and attenuated/stretched inguinal floor mimicking a direct hernia, requiring McVay repair; three of these patients had both abdominal and scrotal components of ASH present at the time of the operation, one had resolution of abdominal part prior to surgery, and one patient had complete resolution of ASH preoperatively but found to have an inguinal bulge with evidence of indirect hernia and weakened inguinal floor intraoperatively.

3. Discussion

The number of case reports of ASH is increasing in recent years [3,5], partially owing to increased awareness of this entity. All the cases of ASH in our case series were diagnosed after referral to the pediatric surgery or urology services at BC Children's Hospital. Interestingly, the initial reason for referral for all 29 patients with ASH was either scrotal hydroceles or inguinal hernias. This may indicate that ASH is underdiagnosed and with more awareness of the entity, and the better utilization of diagnostic tools more cases can be identified.

In this case series, the Springing Back Ball Sign was a very useful screening and diagnostic tool for identifying pediatric scrotal swellings that could represent ASH; this sign was detected in 24 out of 27 patients that it was assessed for in this study. Springing Back Ball Sign is a physical exam maneuver in which by compressing the scrotal swelling the fluid is balloted into the abdominal component but then it springs back into the scrotum, usually spontaneously or by applying pressure over the suprapubic area or lower abdomen [6,7]. We recommend performing this simple physical examination on all pediatric patients with scrotal swelling to increase the chance of detecting ASH, even if prior to performing this maneuver there is no palpable abdominal mass.

In addition to the Spring Back Ball Sign, we identified features in the history or physical examination of patients in this case series that we believe should raise suspicion for ASH; these features include: fluctuation

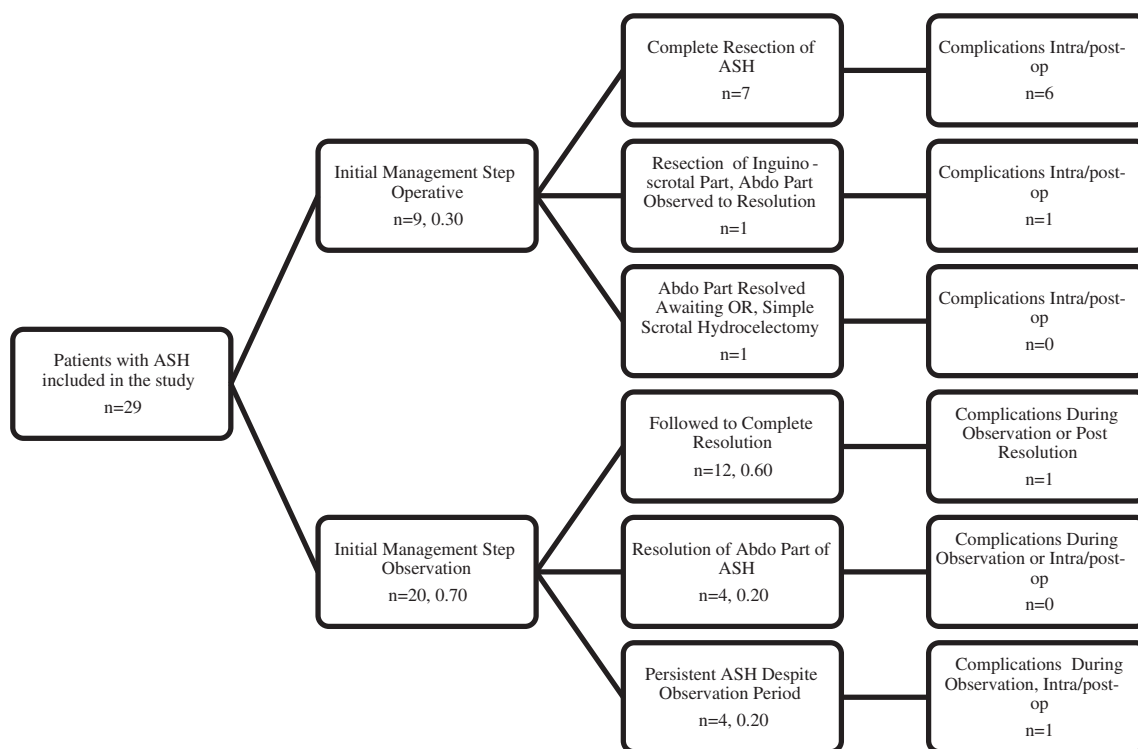


Fig. 1. Summary of outcomes of patients, divided into operative and nonoperative arms based on the first step chosen for their management.

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