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Chronic orchalgia after surgical exploration for acute scrotal pain in children

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Summary

Objectives
The aim was to review the pediatric cohort undergoing surgical exploration for acute scrotal pain at our institution and assess the entity of chronic orchalgia post exploration in this cohort.

Materials and methods
A retrospective review of all pediatric patients who underwent surgery for acute scrotal pain at a single institution between 1 January 2001 and 1 January 2012 was conducted.

Results
A total of 1084 patients underwent scrotal exploration for acute scrotal pain where the underlying cause could not be clinically ascertained. Causes found at exploratory surgery are shown in the table. Forty-four children (4.1%) re-presented with another episode of acute scrotal pain and underwent re-exploration. A hundred of the 772 children with testicular appendage torsion at initial exploration had unilateral exploration only. Seven (7%) of these re-presented with contralateral appendage torsion. The complication rate of initial scrotal exploration was 5.6% and that of re-exploration was 6.8%. All complications were managed conservatively except for a painful reactive hydrocele that underwent the Jaboulay procedure. Fifteen (1.4%) children in this cohort developed chronic orchalgia. Thirteen (87%) of these had definite pathology found at initial exploration. One of 61 (2%) with postoperative complications (a reactive hydrocele) developed chronic orchalgia. Pediatric chronic pain specialists were consulted for all patients. In 10 of the 15 (67%), significant comorbidities included constipation, anxiety, somatization, hydrocele, dysfunctional voiding, and multiple joint pain. The Jaboulay procedure for reactive hydrocele and re-exploration to pex the testes due to suspected intermittent testicular torsion resolved chronic orchalgia in one patient each.

Discussion
Pediatric chronic orchalgia post exploration is uncommon. It has a multifactorial etiology. Comorbidities are common. It is possible that some unexplored patients labeled as chronic orchalgia in the literature may have underlying correctable pathology. Surgically correctable pathology such as intermittent testicular torsion, metachronous testicular appendage torsion, and symptomatic hydrocele or varicocele should be excluded in children with chronic orchalgia. Chronic pain specialists should be consulted and associated comorbidities managed. Prior surgical exploration and testicular fixation in children with chronic orchalgia helped reassure patients and families that there was no underlying surgical cause for the pain and facilitated compliance with chronic pain management.

Conclusions
Pediatric chronic orchalgia has a multifactorial etiology and is uncommon after scrotal exploration surgery. Comorbidities are common and must be managed. Surgical exploration helps reassure patients that there is no correctable cause for the pain and facilitates engagement with chronic pain management.

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Table Chronic orchalgia after scrotal exploration in a large cohort: rate and associated comorbidities.

Initial scrotal exploration $n = 1084$		Undergoing re-exploration $n = 44$		Chronic orchalgia $n = 15$ (1.4%)
Pathology	Number (%)	Pathology	Number (%)	Comorbidities noted
Appendage torsion	772 (71.2)	Appendage torsion	13 (29.6)	Anxiety
Testicular torsion	115 (10.6)	Testicular torsion	2 (4.5)	Depression
Suspected torsion/detorsion	108 (10.0)	Suspected torsion/detorsion	17 (38.6)	Somatization
Epididymo-orchitis	52 (4.8)	Epididymo-orchitis	4 (9.1)	Joint pain
No cause identified	26 (2.4)	No cause identified	4 (9.1)	Back pain
Other	11 (1.0)	Other	5 (11.4)	Chronic pain syndrome
Complications	61 (5.6)	Complications	3 (6.8)	Constipation
				Lower urinary tract dysfunction
				Varicocele
				Reactive hydrocele
				Intermittent testicular torsion

Introduction

Acute scrotal pain is a common presentation in pediatrics [1—3]. Our clinical practice is to promptly surgically explore the scrotum when children present to the emergency department with scrotal pain, unless it is clinically obvious epididymo-orchitis, there is a clearly visible "blue-dot" sign indicating testicular appendage torsion, or if the typical clinical features of idiopathic scrotal edema are present.

A small number of children had ongoing testicular pain after exploration surgery, meeting the criteria for chronic orchalgia. Chronic orchalgia is defined as intermittent or constant unilateral or bilateral scrotal pain of at least 3 months' duration, which significantly interferes with daily activities [4]. Our study aimed to investigate this phenomenon. We examined our scrotal exploration cohort for the various causes of scrotal pain found at exploration, and those who required re-exploration surgery and why. From this scrotal exploration cohort, we assessed the occurrence of chronic orchalgia, to determine any associations or causative factors.

Chronic orchalgia is better studied in adults but there have been two previous studies on chronic orchalgia in the pediatric population [4—6]. Kalisvaart et al. [4] evaluated different treatment options for chronic orchalgia and Ching et al. [6] investigated the demographics and comorbidities of children who are diagnosed with chronic orchalgia. Children in these series were not surgically explored. This is the first published study to elucidate chronic orchalgia in children after surgical exploration for acute scrotal pain.

Materials and methods

A retrospective cohort study was performed. Institutional ethics approval was obtained (approval number 2877-04/11).

All children undergoing surgery for acute scrotal pain at Princess Margaret Hospital for Children between January 1, 2001, and January 1, 2012, were included in this review.

Patient demographics including age, laterality of exploration, pathology found at exploration, and postoperative complications were recorded from patient records.

It was standard practice for all surgeons to perform scrotal exploration for acute scrotal pain via a midline raphe skin incision. The dartos and testicular tunics were incised and opened laterally, away from the midline septum, to protect scrotal nerves. Testes were pexed bilaterally, using a four-point window orchidopexy technique, only for cases of testicular torsion or suspected testicular torsion/detorsion. This technique involves exposing a large surface of the tunica albuginea to dartos by fixing the open tunica vaginalis at four points to the testis using sutures through the tunical albuginea (Fig. 1). It was standard practice to use polydioxanone (PDS) absorbable sutures for this technique. Testes were not routinely pexed and the tunica vaginalis was closed if the pathology found was testicular appendage torsion or epididymo-orchitis. In cases of testicular appendage torsion, it was routine practice for all but two surgeons to explore and excise testicular appendages bilaterally. Two surgeons explored only the presenting side with the torted appendage. Patients who underwent re-exploration after re-presenting with another episode of acute scrotal pain were assessed for pathology at re-exploration, whether previous orchidopexy was performed and complications.

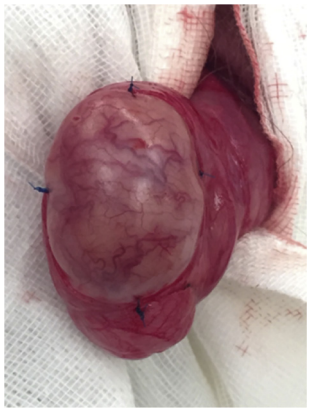

Figure 1 Four-point window orchidopexy.
Source: Princess Margaret Hospital Medical Records.