

Scrotal swellings in the under 5s

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SUMMARY Scrotal swelling is a common cause of referral to the paediatric surgical services in Edinburgh, constituting 12% of total admissions. Of these, 2818 (65%) were in boys under the age of 5 years, with a wide variety, including inguinal hernias, hydroceles, testicular torsion, tumours, and some interesting but uncommon conditions. A retrospective study was performed over a 12 year period to assess the incidence, aetiology, mode of presentation, disease, and management of scrotal swellings in boys under 5. Although most of the causes of these swellings were easily elucidated from a history and clinical examination, it was apparent that a high level of suspicion was also necessary to ensure that more serious problems did not go undetected.

This paper studies the incidence, aetiology, disease, mode of presentation, and management of scrotal swellings presenting over a 12 year period (1972–83) in boys under the age of 5 years.

A total of 37 001 patients were admitted to the paediatric surgical wards in Edinburgh (Royal Hospital for Sick Children, Western General Hospital, and Leith Hospital) over this period. Of these, 4341 were due to scrotal swelling, and 2818 of the scrotal swellings were in boys under 5.

The case notes of these patients admitted due to scrotal swelling were examined and assessed by the author and the findings presented.

Findings

Inguinal hernia. A total of 2031 inguinal hernias were seen in boys under 5 during the 12 years. These constituted 60% of the total inguinal hernias seen. There was, incidentally, an overall boy:girl ratio of 4:1 in the paediatric age group over this period also. Details of these hernias are given in Table 1.

Hydroceles. A total of 753 hydroceles in the under 5s were operated on during this period (86% of the total hydroceles seen). Of these, 507 (67%) were right sided, 185 (25%) left sided, and 61 (8%) bilateral.

Testicular torsion. Altogether, 25 cases of testicular torsion (or torsion of testicular appendages) were seen within the age group of this study (56% of the total seen). Details of these are given in Table 2.

Tumours. Seven primary intrascrotal tumours were

presented in the first five years of life. Ages at presentation ranged from 7 days to 5 years. There were three cases of rhabdomyosarcoma (of epididymis and urachal remnant) and one case each of orchioblastoma, androblastoma, lymphangioma, and benign teratoma. The left to right ratio was 6:1.

All these tumours presented with scrotal swelling. The histories, however, varied from one day (rhabdomyosarcoma) to three months (benign teratoma). The latter case was the only one with a history in excess of two weeks.

Other scrotal swellings. The other scrotal swellings seen were secondary to intra-abdominal problems (blood or chyle after a traumatic vaginal delivery and parenteral feeding fluid after a saphenous vein long line had migrated through a lumbar vein, piercing the peritoneum of the posterior abdominal wall into the peritoneal cavity). There were also a few cases of haematoma and subsequent wound infection after scrotal surgery (orchidopexy or orchidectomy).

Discussion

One in eight admissions to paediatric surgical beds (in Edinburgh) in this study period was due to some type of scrotal swelling. Of these, 65% were in boys under the age of 5. The mode of presentation depended on the underlying disease, but it was not always possible to make a correct diagnosis from history and clinical features alone—for example, acute presentation of boys with testicular neoplasm. By far the most common scrotal swellings were due

to a patent processus vaginalis, which constituted 98% of total swellings.

Inguinal hernias. It is estimated that 1–3% of children develop an inguinal hernia and that there is a pronounced preponderance of boys (6:1 boy to girl ratio).¹ In this series, however, the boy to girl ratio was much less at 4:1. A total of 60% of the hernias presenting to this unit were in boys under the age of 5.

It can be seen from Table 1 that there was a 3:2 ratio of right sided to left sided hernias, which corresponds to the findings in most other series. Our incidence of bilateral hernias, however, was only 8.5%, which is much less than others have reported. Two hundred and fifty one (12%) patients with inguinal hernia subsequently developed a contralateral hernia. The incidence of contralateral hernia was much higher in those who originally presented in the neonatal period (27%) than in those who presented later (12%), as others have described.² The incidence of irreducible inguinal hernias and their outcome varied with the age of the child at presentation, as follows.

There were 37 inguinal hernias in boy neonates. Of these, 27 (73%) were irreducible at presentation. Of these 27 irreducible hernias, 14 reduced spontaneously after analgesia and head down position or gallows traction and/or gentle manipulation/taxis. At surgery in the 13 cases that failed to reduce seven had viable bowel on exploration, but six (22% of the total) contained infarcted small bowel that required resection.

There were 72 irreducible hernias in this age group, and of these, 55 reduced on conservative management. The other 17, however, were explored, and two (3% of the total) required bowel resection.

The overall incidence of irreducibility was 5%, and of these, 8% contained ischaemic bowel.

It is thus clear that the early diagnosis and management of irreducible inguinal hernias is vital in all cases but especially in the neonatal period when morbidity and mortality are significantly greater. There were nine recurrent inguinal hernias (0.4%) in this series, which is similar to that found in other series.³

Hydroceles. There were 753 congenital hydroceles treated surgically during this period. These were in boys in whom the processus vaginalis had remained patent in excess of 18 months after birth or in whom a tense hydrocele was causing pain and discomfort or difficulty in excluding any underlying disease (testicular torsion or tumour).

Table 1 Details of inguinal hernias in boys presenting under the age of 5 years

Age at presentation:	Total No of hernias	Type of hernia			Acute presentation (irreducible)	No responding to sedation and manipulation	No requiring bowel resection	Recurrences	Contralateral hernia
		Right sided	Left sided	Bilateral					
Neonatal	37	30	4	3	27	21	0	10	
4 weeks to 5 years	1994	1067	757	170	72	70	9	241	
Total	2031	1097	761	173	99	91	9	251	

Table 2 *Details of testicular torsions in boys presenting under the age of 5 years*

	Total No of cases	Type of torsion				Orchidectomy
		Right sided	Left sided	Testicular	Testicular/ epididymal appendage	
Age at presentation:						
Neonatal	6	6	0	6	0	4
4 weeks to 5 years	19	5	14	15	4	3
Total	25	11	14	21	4	7

Torsion. It can be seen from Table 2 that there were 25 cases of torsion of the testis or its appendages. Again the findings differed depending on age at presentation.

Six cases presented in the neonatal period, all with right sided testicular torsion. Of these, five were extravaginal (common) and one intravaginal (rare).

At operation four testes were gangrenous and removed, but the vascularity of two testes, which were described as 'dusky', improved on resolution of the torsion and were salvaged.

There were 19 cases who presented outside the neonatal period, of whom 14 had left sided and five right sided lesions. Of these, there were 15 testicular torsions and four cases of torsion of the appendices (four hydatids of Morgagni and one organ of Giralde's). Of the 15 testicular torsions, three were irreversibly ischaemic and therefore removed.

The diagnosis and early management of testicular torsion is essential if the testis is to be saved. This is especially so in the neonatal period when the chances of testicular salvage are very poor.⁴

Neoplasms. The incidence of testicular neoplasms in the paediatric age group has been estimated to be roughly 2 per 100 000, with most occurring within the first two years of life.

In this series 0.25% of scrotal swellings were due to an intrascrotal tumour. The age range at presentation was 7 days to 5 years. Four of our cases (57%) were over the age of 2 years. There was a pronounced preponderance of left sided tumours (6:1). Most intrascrotal tumours present as a slowly enlarging lesion, but in this series only one case had a history in excess of two weeks. There were two cases (rhabdomyosarcoma) with a very short history of less than two days, which presented as emergencies with acute scrotal pain and swelling where the final diagnosis was made at immediate exploration to exclude testicular torsion or intrascrotal trauma. Thus the history and clinical features did not suggest neoplasia, and only a very high level of suspicion

will prevent these lesions being missed at presentation. All tumours were treated by orchidectomy (after first ligating the spermatic cord at the level of the deep inguinal ring). Three tumours were treated with adjuvant chemotherapy, and one required radiotherapy. There was one death six months after diagnosis (a case of rhabdomyosarcoma or urachal remnant who presented with a 24 hour history of scrotal swelling and widely disseminated disease).

Other scrotal swellings. The other scrotal swellings seen were either due to fluid passing through a patent processus vaginalis (blood, chyle, or parenteral feeding fluid) or scrotal surgery. There were nine cases seen of idiopathic scrotal oedema but they were all over the age of 5 years. We did not see the variety of scrotal swellings due to medical causes—for example, Henoch-Schönlein syndrome—that are reported in other series.

Conclusion

Scrotal swelling is a common condition in boys under the age of 5, with a wide range of diseases. Only by careful history taking and examination and a very high level of suspicion will the less common and more serious conditions be diagnosed and treated promptly.

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