Spontaneous Alterations in Position of the Testes

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The treatment of undescended testes in infancy and childhood, and the timing of treatment have been reviewed recently by Johnston (1965) and by the *Brit. med. J.* (1965). From a practical point of view, it is important to know, (1) the incidence of undescended testes in the newborn, and (2) the spontaneous alterations in position of the testes during infancy and childhood. With regard to the first of these questions, we have reported an incidence of undescended testes at birth of 17% among premature and 1.8% among full-term boys (Buemann, Henriksen, Villumsen, Westh, and Zachau-Christiansen, 1961). These figures are similar to those reported by Scorer (1957).

The aim of the present paper is to report spontaneous alterations in the position of testes, during the first 3 years of life, among 4,500 boys who are included in the Copenhagen University Hospital investigation of the influence of pregnancy and delivery upon the health and development of the child.

Method

The children were examined by a paediatrician on the first and fifth day of life. At the age of 1 and 3 years, they were invited for a re-examination in the hospital's out-patient clinic. Of the boys, 67% were seen at the 1-year examination, and about 50% at the 3-year examination. Only those boys who were thus examined are included in this study.

Only after a painstaking attempt to get a testis which was not immediately palpable down into the scrotum was it considered to be undescended.

The undescended testes were classified as not palpable, palpable at the external inguinal ring, or palpable at the top of the scrotum.

Results

Imperfect descent of the testes was found in 209 boys (including 126 prematures, i.e. birthweight $\leq$ 2,500 g.) at examination on the *first day* of life. In 118 boys (86 prematures, or 73% of the total) the imperfect descent was bilateral, and in 91 (40

prematures, or 44% of the total) it was unilateral. A total of 327 testes were undescended, their position being shown in Table I.

Table I shows that there was a higher incidence of prematurity among the bilateral cases than among the unilateral cases. Of the 91 unilateral cases, 54 were right-sided. In one case the side is not stated.

TABLE I

Position of 327 Undescended Testes at Birth

	Bilateral		Unilateral		Total
	No. of Testes	Percent-age of Prema-tures	No. of Testes	Percent-age of Prema-tures	
Not palpable ..	100	80	51	37	151
At the external ring ..	54	78	14	50	68
At the top of the scrotum ..	72	64	26	46	98
Different positions	10	40	—	—	10
Total	236	73	91	44	327

At the examination on the *fifth day* of life, 166 boys were alive. The alteration in the position of the testes in these boys is shown in Table II.

TABLE II

Descent of Testes 1st-5th Day

	No. of Boys	No. of Undescended Testes	
		1st Day	5th Day
Premature	84	134	107
Full-term	82	114	102
Total	166	248	209

Of these 166 boys, 138 were re-examined at the age of *1 year*. Testicular descent during the first year is shown in Table III, and the final position at 1 year is given in Table IV.

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TABLE III
Descent of Testes 1st Day-1st Year

	No. of Boys	No. of Undescended Testes		
		1st Day	5th Day	1st Year
Premature ..	65	108	97	16
Full-term ..	73	101	95	36
Total	138	209	192	52

TABLE IV
Position of 52 Undescended Testes at 1 Year

	Premature	Full-term	Total
Not palpable	7	21	28
At the external ring ..	6	8	14
At the top of the scrotum ..	3	7	10
Total	16 (12 boys)	36 (32 boys)	52

Examinations were carried out on 87 boys at both the age of 1 and at the age of 3 years. The altered position of the testes is shown in Table V and the final position in Table VI.

Table V shows that 2 testes had *ascended* between the 1- and the 3-year examinations. As a consequence of this finding, records of approximately 4,300 boys who had testes normally placed at birth were studied, and among these there were 69 boys who had 87 testes placed in a higher position on a later examination. At the 3-year examination, 11 of these 87 testes were found in a position higher and more lateral than the external ring, i.e. ectopically

TABLE V
Descent of Testes 1st Day-3rd Year

	No. of Boys	No. of Undescended Testes			
		1st Day	5th Day	1st Year	3rd Year
Premature ..	38	66	61	6	6
Full-term ..	49	68	63	23	25
Total	87	134	124	29	31

TABLE VI
Position of 31 Undescended Testes at 3 Years

	Premature	Full-term	Total
Not palpable	2	10	12
At the external ring ..	4	9	13
At the top of the scrotum ..	0	6	6
Total	6 (5 boys)	25 (21 boys)	31

placed. At the same age this was only found in 3 of the 134 testes belonging to the 87 boys who had one or both testes undescended at birth.

Discussion

Our results correspond very closely with those of Scorer (1964). We did not examine our subjects between the 5th day and 1 year of age, and are, therefore, unable to fix the exact time during the first year at which the descent took place. Scorer reports that this happens in the first weeks of life for full-term boys and in the first three months for the prematures.

Using the incidence for undescended testes at birth previously found by us (1.8% for full-term boys and 17.2% for premature boys), the results from Tables III and IV make it possible to estimate that about 3.1% of premature and about 0.7% of full-term boys have undescended testes at the age of 1 year. In the same way, it can be estimated that at the age of 3 years 2.3% of premature and 0.8% of full-term boys will have undescended testes.

If these estimates are combined with the fact that amongst 1-year-old children about 5% are premature at birth (*Statistiske Efterretninger*, 1960; *Medical Report for the Kingdom of Denmark 1961 and 62*, 1964), we should expect to find that 0.9% of Danish boys have undescended testes at 1 year of age. In the same way it can be calculated that the corresponding incidence of 3-year-old boys with undescended testes will be 0.8%. These figures are in good agreement with those of Scorer (1964).

The incidences 0.9 and 0.8% are also comparable with reported incidences of undescended testes among army recruits. Danish investigators (Hansen, 1945; Engberg, 1948; Smith, 1953) report an incidence of about 0.5-1%. Baumrucker (1946) found an incidence of 0.8% in the U.S. army.

A relatively high number of testes which *ascended* during the first three years of life were noted by all 4 examiners. It is an open question whether such ascending testes provide some of the ectopic testes found in childhood, and/or some of the testes which spontaneously descend later in childhood.

Summary

About 75% of testes undescended at birth have taken up their normal position by the age of 1 year. Between 1 and 3 years none were observed to descend. At 1 to 3 years of age 0.8-0.9% of boys have undescended testes. This incidence is about the same as is found in army recruits.

Amongst 4,300 boys with testes normally placed at birth, 69 boys had 87 testes placed in a higher position at the age of 1 or 3 years.

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