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## Undescended testes in low birthweight infants

Cryptorchidism is a known risk factor for infertility and testicular malignancy. The reported incidence is rising and is now over 2%,<sup>1</sup> bilateral abnormality occurring in 10-25% of cases. Undescended testes are more common in low birthweight infants,<sup>2</sup> but there is little detailed information on this subgroup. We collected extensive data on preterm infants, enabling us to determine the incidence of cryptorchidism and its associations.

### Patients, methods, and results

Altogether 355 male infants with birth weights under 1850 g who had been admitted to Cambridge, Norwich, Ipswich, or Kings Lynn in 1982 or 1983 and all units in East Anglia in 1984, were examined by one of us (RM) at 18 months after term. An undescended testis was defined as one that could not be brought down to the bottom of the scrotum by manipulation (alternatively, a previous operative diagnosis was taken).

The overall incidence of undescended testes was 35/355 (9.9%). Cryptorchidism was strongly related to birth weight (table). In infants below and above 1500 g the incidence was 29/186 (16%) and 6/169 (3.6%), respectively ( $p=0.001$ ). Bilateral abnormality occurred in 15 of the 35 cases (43%). Of the 260 infants born at up to 32 weeks' gestation, 33 (13%) had undescended testes compared with two of the 95 (2%) born after 32 weeks ( $p<0.01$ ). A birth weight of under 1850 g was the criterion for entry to this study; thus larger infants born after 31 weeks were excluded. Undescended testes were, however, unrelated to being small for gestational age.

Extensive data on antenatal, perinatal, and postnatal factors, collected in a subgroup of 287 infants enrolled in a preterm feeding trial,<sup>3</sup> showed significant associations between undescended testes and both necrotising enterocolitis ( $p=0.025$ ) and eczema at 18 months ( $p=0.001$ ; table) (enterocolitis and eczema were evenly distributed across the range of birth weight). Cryptorchidism tended to be more common in infants whose mothers had been given steroids (8/44 (18%) compared with 21/243 (8.6%);  $p=0.053$ ). No significant associations were found with maternal age or parity, conception while the mother was taking oestrogens, breech delivery, phototherapy (which affects plasma luteinising hormone concentration<sup>4</sup>), severity of neonatal respiratory disease, or any other factor analysed.

### Comment

Cryptorchidism emerges as one of the commonest abnormalities in surviving male infants of very low birth weight, occurring in 19% of those weighing below 1000 g. Testicular descent, normally a late fetal event, may be interrupted by preterm birth; interestingly, in infants born after 32 weeks' gestation the incidence of cryptorchidism was similar to that reported in infants born at term.

### Incidence of undescended testes by birth weight and presence of necrotising enterocolitis and eczema 18 months after term

	No with normally descended testes	No (%) with undescended testes	Significance*
Birth weight (g):			
≤999	29	7 (19)	$p<0.001$
1000-1199	34	7 (17)	
1200-1399	59	9 (13)	
1400-1599	75	7 (9)	
1600-1849	123	5 (4)	
Necrotising enterocolitis†:			
None	250	25 (9)	$p=0.025$
Present	8	4 (33)	
Eczema at 18 month examination†:			
None	224	20 (8)	$p=0.001$
Mild or moderate	31	7 (18)	
Severe	1	2 (67)	

\* $\chi^2$  Test, one degree of freedom for trend.

†Infants enrolled in preterm feeding trial.

We failed to find an association between undescended testes and factors described previously.<sup>1</sup> The association between undescended testes and necrotising enterocolitis may be a chance finding, given that multiple factors were analysed, but intra-abdominal disease might interfere with testicular descent. The association with eczema is probably not a chance finding. Given the trend towards a higher incidence of cryptorchidism in the small group whose mothers received steroids, we speculate that cutaneous absorption of corticosteroid creams for infantile eczema may interfere with the descent of testes.

We calculate that an increase in the survival of infants weighing under 1500 g from 50% to 80% (as occurred in Cambridge during 1952-82) would increase the incidence of undescended testes in the population by only 0.04%, which does not account for the reported secular rise from around 1% to 2%.

The risk of testicular malignancy is reportedly up to 50 times higher in cryptorchid men.<sup>5</sup> Bilateral abnormality, which may increase the risk of malignancy, was common in low birthweight infants (43%), further raising their theoretical risk of later testicular cancer. The benefits of early orchidopexy in improving fertility and preventing malignancy remain uncertain. We suggest, however, that cryptorchidism should be sought at routine follow up of preterm infants and that long term epidemiological surveillance of cryptorchid infants born before term is required.

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