

The Relationship of Testicular Tumours to Maldescent

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SUMMARY

The incidence of 11,6% maldescent in a series of 103 cases of testicular tumours, is in accordance with the figure quoted in the literature. The malignant potential of the maldescented testis is stressed. Its relationship to age and site, and the effect of orchidopexy, are analysed. Routine orchidopexy between 5 and 7 years of age is recommended in order to prevent irreversible damage to the maldescented testis and to allow for early detection of possible malignancy.

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The definitive development of the foetal testis occurs between the 6th and 8th week of intra-uterine life. Normally the process of testicular descent commences between the 28th and 30th week of foetal life and is complete at term. In approximately 2% of neonates and 0,8% of infants, the testis fails to reach the scrotum, and arrest occurs either along the normal pathway of descent (true undescended testis), or in an aberrant position (ectopic testis). A maldescented testis may be abnormal not only in location, which predisposes to trauma, but also in structure and function. The ipsilateral maldescented testis may be histopathologically dysplastic¹ with resultant defective spermatogenesis, and one-third of the normally descended contralateral testes are similarly affected. This dysplastic change is the major factor predisposing the testis to neoplasia.²

The purpose of this article is to document the incidence of maldescented testis in a series of testicular tumours, to evaluate the risk of malignancy in a patient with testicular maldescent, and to recommend a scheme of management for the maldescented testis in general.

CLINICAL MATERIAL

One hundred and three testicular tumours treated by 20 surgeons in Johannesburg over the past 7 years are analysed; 91 occurred in a normally descended scrotal testis, while 12 were associated with maldescented testes (Fig. 1), and occurred between the ages of 18 and 40 years. The over-all age distribution is shown in Fig. 2.

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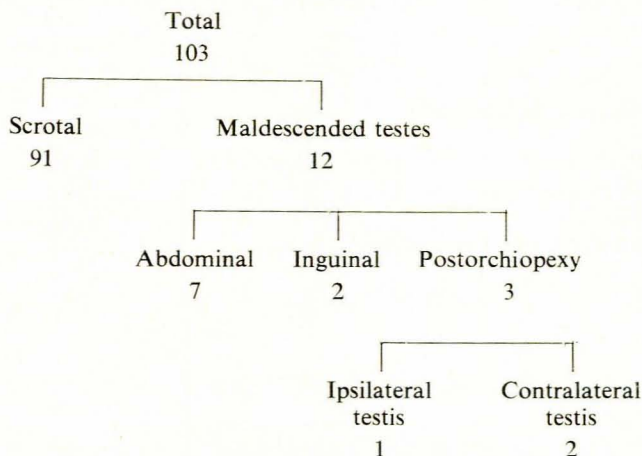


Fig. 1. Malignant testicular tumours.

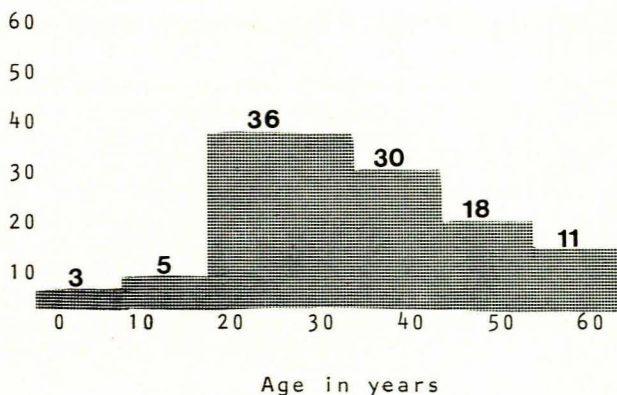


Fig. 2. Age incidence of malignant testicular tumours.

Histopathology of the tumours revealed 75 seminomas; 23 teratomas and 5 miscellaneous tumours, including 3 choriocarcinomas, lymphosarcoma, and rhabdomyosarcoma.

Of the 12 tumours shown to be associated with maldescented testes in Fig. 1, 9 were seminomas and 3 were teratomas. One of the latter was located in an intra-abdominal position and 2 occurred after orchidopexy; 1 in the ipsilateral organ and the other in the contralateral normally descended testis.

The incidence of maldescent (12) in these 103 testicular tumours analysed was 11,7% (Fig. 1).

DISCUSSION

The 11.7% incidence of maldescent in this small series of 103 cases of testicular tumours corresponds almost exactly with the average incidence (11.6%) in a number of the larger series reported in the literature²⁻⁹ (Table I).

TABLE I. INCIDENCE OF MALDESCENT IN TESTICULAR TUMOURS

Authors	No. of cases	Incidence of maldescent %
Gilbert and Hamilton ³	7 000	12.0
Dean ⁴	242	14.8
Hinman ⁵	649	12.2
Collins and Pugh ⁶	895	9.0
Rea ⁷	1 371	10.0
Gordon-Taylor and Wyndham ⁸	626	11.8
Total	10 783	11.6

Relationship of Age to Malignancy

Ninety-five per cent of testicular tumours occur between the ages of 20 - 45 years.² Their occurrence before puberty is extremely rare.¹⁰⁻¹²

Relationship of Site of Maldescent to Malignancy

Many authors state that the site *per se* of the testis has no influence on its malignant propensity.^{2,3,11} Campbell,¹⁴ however, maintains that an abdominally located testis had a malignant potential 4 times greater than one located in the groin, namely 1 : 20 compared with 1 : 80. Of the cases associated with maldescent in our series, 58.3% occurred in abdominally-located organs. An increased risk of malignancy exists for the contralateral normally-descended testis,¹⁵ especially when the ipsilateral maldescented testis is affected (1 : 10). There is an even greater risk (1 : 4) for the contralateral testis in cases with bilateral cryptorchism.³

Effect of Orchiopexy on Malignant Potential

Orchiopexy is performed as a routine between the ages of 5 and 7 years, to prevent irreversible damage occurring in the maldescented organ.¹⁶ The procedure itself does not alter the risk of developing malignancy,^{3,8} but does allow for earlier detection.

MANAGEMENT

The increased liability of the maldescented testis to neoplasia,^{17,18} combined with the failure of orchiopexy to reverse this potential, would seem to indicate the routine excision of the maldescented organ. The risk, however, remains small, 1 : 1 000.²

The following recommendations are proposed:

1. Routine orchiopexy to be performed between 5 and 7 years of age.
2. Prompt herniotomy to be carried out, and an orchiopexy attempted if the associated indirect inguinal hernia presents in infancy.
3. Regular long-term follow-up examinations, even for life if necessary, of any patient who has had an orchiopexy.
4. Orchiectomy to be carried out for:
 - (a) recurrent failures to achieve a scrotal testis, especially if the contralateral side is clinically normal;
 - (b) intra-abdominal testis after the establishment of secondary sex characteristics; and
 - (c) any unilateral maldescented testis presenting for the first time after puberty.

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