Biopsy taken at orchidopexy was associated with an increased risk of testicular cancer in boys with cryptorchidism


Objective
To determine whether an association exists between cryptorchidism and testicular cancer in boys.

Design
Cohort study.

Setting
Hospital in London, U.K.

Participants
1075 boys with cryptorchidism who had had orchidopexy or hormonal treatment. Patients were excluded if they had any major congenital malformations or syndromes of which cryptorchidism only formed a minor part.

Assessment of risk factors
A standardised abstraction schedule was used to obtain data from hospital notes on demographic details, type of maldescent and its treatment, other diseases, and biopsy results and from other investigations done.

Main outcome measure
Incidence of testicular cancer. Follow-up information was extracted on mortality, date of orchidopexy, and emigrations from the National Health Service Central Register. Patients’ current general practitioners were sent a questionnaire to determine whether the patient had had further operations and whether testicular cancer had occurred.

Main results
12 patients presented with testicular cancer during follow-up (9 teratomas, 2 seminomas, and 1 mixed teratoma-seminoma). The relative risk (RR) for testicular cancer in the cohort compared with that in the general population was 7.5 (95% CI 3.9 to 12.8). The RR for malignant cancer in an undescended testis compared with a testis in a man from the general population was 11.3 (CI 5.9 to 19.4). The risk for testicular cancer in boys who had had a biopsy sample removed at orchidopexy was greater in patients who had had a biopsy sample removed at orchidopexy than in patients who had not had a biopsy sample removed at orchidopexy (P < 0.001; RR 66.7, CI 23.9 to 181.9 for patients who had had a biopsy; 6.7, CI 2.7 to 13.5 for patients who had not had a biopsy).

Conclusion
Boys with cryptorchidism had an increased risk for testicular cancer compared with the general population. Biopsy of undescended testes at orchidopexy was associated with an increased risk for testicular cancer.

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Commentary
This carefully studied cohort of 1075 boys treated for cryptorchidism through the British National Health Service confirms the known increased risk for eventual development of cancer in this population (RR in an undescended testis is 11.3 compared with a descended testis in the general population). Age at orchidopexy had no demonstrable bearing on the development of malignancy, leaving unproved the theoretical benefit of early correction of maldescent.

An unexpected and very important finding from this retrospective analysis was the strong association between biopsy of the testis at time of orchidopexy and later development of cancer. Risk for eventual malignancy was 66.7 in testes on which a biopsy had been done compared with 6.7 for similar testes on which a biopsy had not been done. No physical differences were described, nor were other reasons given about why testes had to have biopsies done. For example, subtle changes, such as alteration in consistency of the testis, might not have been mentioned. Biopsy was done on 0.085% of maldescent testes. Malignancy was encountered in none of the initial biopsies, although carcinoma in situ was found in a second biopsy specimen from a testis of a boy who was 15 years of age who had had orchidopexy at 9 years of age. The cancer death rate is not known, although it is estimated that 5% of testes biopsies are positive for malignancy. The apparent positive relation between maldescent and malignancy (open biopsy in each case) is not the same as that found in normal testes. The risk in this cohort is unknown, although some studies have shown major changes in traumatised testes. Biopsy was a standard practice, and this confirms the wisdom of that approach.

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