Risk of testicular cancer with cryptorchidism and with testicular biopsy: cohort study

Henrik Møller, Dina Cortes, Gerda Engholm, Jørgen Thorup

Swerdlow et al studied a cohort of 1075 men who had been treated for cryptorchidism.[1] In 120 testes that had been biopsied at the time of orchiopexy the relative risk of subsequent development of testicular cancer was 66.7. The corresponding relative risk in 1285 undescended testes that had also been operated on but not biopsied was 6.7. The estimate for testes that were not biopsied is about as expected,[2–4] but the high relative risk of testicular cancer in biopsied testes is a new finding not yet substantiated by other studies. A potential weakness of the study is the unclear criteria for biopsy in 9% of the testes in the series; this leaves open the possibility of selection bias if testes with a high risk of subsequent malignancy were preferably biopsied.

To explore the risk of testicular cancer in an unselected population of biopsied undescended testes, we investigated a cohort of 830 men who had surgical treatment of 1026 undescended testes at this hospital between January 1971 and January 1992.

Subjects, methods, and results

An open surgical biopsy sample was taken from all testes at the time of surgery.[5] The current analysis is based on one person less than the previous report[5] because a duplicate record was discovered and deleted. The clinical data included information on date of birth, date of surgery for cryptorchidism, and results for the biopsied tissue. Information on cancer occurrence, including date of diagnosis and tumour type, were obtained from the Danish cancer registry. Dates of death of cohort members were obtained from the Danish register of deaths. The incidence of testicular cancer among cohort members was compared with the corresponding expected incidence in the total male population in Denmark. The analysis was carried out, firstly, on the 830 men who had had one or both testes biopsied, and, secondly, on the 1026 biopsied testes.

The table shows the occurrence of testicular neoplasms in the 830 men from birth to 31 December 1994. Of the seven cases, one occurred before a biopsy sample was taken from the contralateral testis (case 1), three were diagnosed by histological examination at the time of surgery for cryptorchidism (cases 2-4), two occurred in previously biopsied testes (cases 5 and 7), and one was a contralateral cancer in a man previously operated on for unilateral cryptorchidism (case 6). The three cases that occurred in men who had a testicular biopsy in one or both testes (cases 5-7) corresponded to a relative risk of 2.0, while the two cases in biopsied testes (cases 5 and 7) corresponded to a relative risk of 2.2 (table).

Comment

Our data, based on a large series of men operated on for cryptorchidism who had all had a biopsy done at the time of the operation, do not support the finding of Swerdlow et al of a greatly increased risk of testicular cancer in biopsied testes.[1] On the contrary, our data suggest a moderately increased (about twofold) risk of testicular cancer in biopsied testes. Histological examination at the time of surgery for cryptorchidism discovered one case of seminoma and two cases of carcinoma in situ (cases 2-4). If these three cases had become clinically manifest as invasive cancer later the number of cases during follow up would have been six and the relative risk would have been about fourfold, which is the rate expected in a population of men treated for cryptorchidism.[2–4]

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Centre for Research in Health and Social Statistics, Danish National Research Foundation, Sejrøgade 11, DK-2100 Copenhagen Ø, Denmark
Henrik Møller, *head*
Gerda Engholm, *statistician*
Departments of Pathology and Paediatric Surgery, National University Hospital, DK-2100 Copenhagen Ø
Dina Cortes, *registrar in pathology*
Jørgen Thorup, *head of paediatric surgery*
Correspondence to: Dr Møller cerefo@inet.uni2.dk

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Occurrence of testicular neoplasia in 830 men who had testicular biopsy samples taken at time of surgical treatment for cryptorchidism

Case No	Age at operation for cryptorchidism (years)	Record of testicular neoplasia	Included in analysis of 830 men*	Included in analysis of 1026 testes†	Diagnosed at time of surgery for cryptorchidism
1	14.3 (right)	Yolk sac tumour in normally descended left testis at 1.8 years.	No	No	No
2	18.6 (left and right)	Seminoma in right testis at 18.6 years.	No	No	Yes
3	15.4 (right)	Carcinoma in situ in right testis at 15.4 years.	No	No	Yes
4	10.8 (left);	Carcinoma in situ in right testis at 10.9 years.	No	No	Yes
	10.9 (right)				
5	13.6 (left and right)	Non-seminoma in left testis at 27.5 years.	Yes	Yes	No
6	11.3 (right)	Non-seminoma in normally descended left testis at 24.1 years.	Yes	No	No
7	14.8 (left and right)	Seminoma in right testis at 36.2 years.	Yes	Yes	No

*Follow up of 830 men: 12 777 person years; observed/expected=3/1.47, relative risk=2.0 (95% confidence interval 0.4 to 6.0).
†Follow up of 1026 biopsied testes: 15 762 testis years; observed/expected=2/0.92, relative risk=2.2 (0.3 to 7.9).