Audit

Is high cord radical orchidectomy always necessary for testicular cancer?

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Background: Radical high cord inguinal orchidectomy remains the standard for diagnosis, staging and treatment of testicular neoplasms. Low cord orchidectomy is an alternative to the high cord orchidectomy.

Objective: To test the hypothesis that there is no difference in relapse rate or mortality between high and low cord orchidectomy for the treatment of testicular cancer.

Methods: A retrospective study was undertaken of all orchidectomies performed for testicular cancer at our hospital between 1981 and 2002.

Results: Overall, 120 high cord orchidectomies and 102 low cord orchidectomies were performed for testicular cancer between 1981 and 2002 at our hospital. Analysis showed that there was no significant difference in the mean age of the patients, the rate of relapse, mean time to relapse or survival between surgical approach for stage 1 tumours. For stage 2–4 tumours, there were not sufficient numbers to comment on the statistical significance of relapse or survival differences.

Conclusions: The trend suggests that there is no statistically significant difference in the rate of relapse and mortality between high and low cord orchidectomy for clinically stage 1 tumours. We would, therefore, advocate either a high or low cord orchidectomy for clinically stage 1 tumours.

Key words: Orchidectomy – Testicular neoplasm – Surgery

Testicular germ cell tumours are the commonest tumours in men aged 15–35 years.¹ Overall they are rare and account for 1% of all male cancers. In the UK, 1400 new cases are diagnosed per year and this number is increasing.² Radical inguinal orchidectomy remains the standard for diagnosis, staging and treatment of testicular neoplasms.³ Following this, patients are either put on surveillance or receive chemotherapy, radiotherapy or surgery to retroperitoneal lymph nodes. Survival rates are high and with the application of multimodal therapy including effective chemotherapeutic regimens, cure rates of more than 95% can be achieved.^{2,4}

The surgical technique of radical high cord inguinal orchidectomy is well described. Through an approximately 10-cm oblique inguinal skin incision, the external fascia is exposed and divided in the line of its fibres to the internal ring. The spermatic cord is clamped, mobilised and transfixed at the internal ring and the remaining cord and diseased testis are dissected free and sent for histological evaluation. The inguinal approach is preferable to the scrotal approach, which has the theoretical risk of lymphatic spread of testicular cancer cells to the scrotal skin and its lymphatic drainage, thus necessitating postoperative radiotherapy to the genitalia, with

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Figure 1 Testicular cancers by stage and type of orchidectomy.

subsequent hazards of radiotherapy to the contralateral normal testis. The most common complication of this operation is haemorrhage which may be severe and hidden. Retroperitoneal haemorrhage may only be recognised when significant blood loss has occurred.⁵ Other complications include wound infection, seroma formation, local hypoaesthesia, and persistent inguinal and scrotal neuralgia.⁶

The 'low cord' orchidectomy, which involves transection of the spermatic cord at the external inguinal ring, without compromising the cancer resection margin, theoretically has a lower risk of complications than high cord orchidectomy, and thus seems a logical alternative approach. A smaller (< 6 cm) medial inguinal incision is used, and ligation of the spermatic cord at the external ring achieved without opening the inguinal canal. A longer incision is only necessary rarely if the testicular cancer is large.

At our institution, both high and low cord orchidectomies have been performed for testicular cancer over the past 21 years. The aim of our study was to test the hypothesis that there was no difference in relapse rate or mortality between high and low cord orchidectomy in the treatment of localised testicular cancer.

Patients and Methods

We performed a retrospective study of all orchidectomies performed for testicular cancer over a 21-year period between 1981 and 2002. Patients were identified by their inclusion in the comprehensive local Oncological Testicular Tumour Database. The database included information on patients' age, tumour histology and stage (Royal Marsden staging method), primary and adjuvant therapy received and time to relapse. Other additional information was found by reviewing patients' medical records. The majority of patients presented with stage 1 testicular tumours and

Figure 2 Testicular cancers by histology and type of orchidectomy.

relatively fewer patients presented with stage 2, 3, and 4 tumours. Due to the overall small numbers in the stage 2, 3 and 4 groups, we analysed the data using two subgroups – stage 1 tumours and stage 2–4 tumours. *t*-Test analysis was used to compare the difference in means between the two subgroups. All data were analysed using the Stata v. 7 statistical package.⁷

Results

Overall, 222 radical orchidectomies were performed for testicular cancer between 1981 and 2002. Of these, 158 were for stage 1 tumours and 64 for stage 2–4 tumours combined. Of the stage 1 tumours, 102 were seminomas and 56 non-seminomatous germ cell tumours (NSGCT). Of the stage 2–4 tumours, 26 were seminomas and 38 NSGCT. There were, overall, 120 high cord orchidectomies and 102 low cord orchidectomies performed. There were 20 relapses in the stage 1 group (12.7%) and 17 relapses in the stage 2–4 group (26.6%). Figure 1 shows cancers by stage and type of orchidectomy. Figure 2 shows cancers by histology and type of orchidectomy.

Analysis of the stage 1 tumours showed that 73 high and 85 low cord orchidectomies were performed. There was no significant difference in the mean age of the two groups ($P = 0.14$), percentage relapse ($P = 0.91$) or the

Table 1 Stage 1 tumours

	Type of orchidectomy	
	High	Low
Total number of tumours	73	85
Mean age (years)	35.7	38.4
Mean follow-up (months)	50.2	40.2
No. relapse (%)	9 (12.3)	11 (12.9)
Mean time to relapse (months)	14.4	25.7

Table 2 Stage 2–4 tumours

	Type of orchidectomy	
	High	Low
Total number of tumours	47	17
Mean age (years)	34.3	36.4
Mean follow-up (months)	49.3	39.5
No. relapse (%)	14 (29.8)	3 (17.6)
Mean time to relapse (months)	26.5	8

mean time to relapse ($P = 0.37$). There was, however, a significant difference in the mean follow-up time between high and low cord orchidectomies ($P = 0.03$; Table 1). When subgroups were analysed, there was no difference in percentage relapse in seminomas ($P = 0.78$), NSGCTs ($P = 0.78$) or tumours treated solely with orchidectomy and surveillance ($P = 0.65$) between surgical approaches. No local relapses for either surgical groups occurred in the inguinal canal. There was one death in the stage 1 group in a patient with a NSGCT treated with a low cord orchidectomy that underwent surveillance at another hospital.

For stage 2–4 tumours there was no difference in age ($P = 0.46$), percentage relapse ($P = 0.78$) or mean time to relapse ($P = 0.36$) but there was a significant difference in mean follow-up ($P = 0.02$) between high and low cord orchidectomy (Table 2).

Discussion

The potential argument against the low cord approach is that with a shorter resection margin from the cancer, there is a possibility of a positive margin in the proximal spermatic cord stump and hence leaving micrometastases in the inguinal canal spermatic cord remnant. In our study, of the 102 low cord orchidectomies performed, there were no recorded local recurrences in the inguinal canal.

Our study showed no significant difference in the rate of relapse or mortality for stage 1 tumours, between high and low cord orchidectomy. There was a significant difference in mean follow-up time (50.2 versus 40.2 months), but as most relapses occur within 24 months of diagnosis,⁸ and the average follow-up was greater than 40 months for both groups, we did not feel this significantly affected the outcome of our results.

For stage 2–4 tumours there were not sufficient number of patients in the group to comment on the statistical significance of relapse differences or survival differences.

Overall, we believe that as we had no significant complications with the low orchidectomy approach, it may offer an advantage over the high approach, in terms of a theoretical reduction in surgical morbidity. Furthermore, we believe it offers a faster and easier operation technically because there is no necessity to open the inguinal canal.

Conclusions

Our data suggest that there is no statistically significant difference in the rate of relapse and mortality between high and low cord orchidectomy for clinically stage 1 tumours. We would, therefore, advocate either a high or low cord orchidectomy for clinically stage 1 tumours. Further studies would need to be undertaken to assess any significant difference in surgical morbidity between the two surgical techniques.

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