Surgical approach of giant testicular cancer. Case report and literature review

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Testicular cancer, which generally presents as a scrotal mass of variable sizes, is amongst the most common malignancies in men in the 15- to 35- year age group. A high inguinal orchiectomy is the standard approach for removal of a scrotal mass suspicious of being malignant. A recent report described a combined use of an inguinal incision, for early clamping of the spermatic cord, and a scrotal incision for orchiectomy of a large size testicular seminoma.1 We hereby report a case of a large size testis cancer removed using a single oblique inguinoscrotal incision. This approach allows inguinal delivery of a large size of scrotal mass without additional concerns of scrotal tumor spillage and violation of tunica vaginalis.

Key Words: neoplasms, testicular, technique, scrotum, orchidectomy

Case

A 35-year-old male presented with a 2-year history of a gradually enlarging left scrotal mass. There was no history of trauma, cryptorchidism, pain or any voiding or constitutional symptoms. Past medical and family histories were unremarkable. Physical examination revealed a large, firm non-tender and non-transilluminating left scrotal mass Figure 1. There was no evidence of inguinal lymphadenopathy. Ultrasonographic evaluation of the scrotum revealed a 10.3 cm x 9.8 cm heterogeneous nodular mass. The majority of the mass was solid in appearance. Multiple small cystic components were also noted. The right testicle appeared normal. Serum lactate dehydrogenase (LDH) levels were normal at 258 units/L (reference range 118-273 Units/L), while both beta-human chorionic gonadotropin (μ-HCG) and alpha-fetoprotein (AFP) were elevated at 949 IU/L (<5 IU/L) and 499 μg/L (<10 μg/L), respectively. A diagnosis of left non-seminomatous germ cell tumor (NSGCT) was made. Metastatic evaluation revealed a normal chest radiograph. Computer tomographic examination of the abdomen, pelvis and thorax revealed no significant lymphadenopathy. The patient underwent a left radial orchiectomy on the day of presentation. Intra-operatively, an 8 cm oblique inguinal incision was made. The spermatic cord was clamped proximally at the internal inguinal ring. The left testicular mass was mobilized off from the scrotal wall. To allow delivery of the large scrotal mass, the

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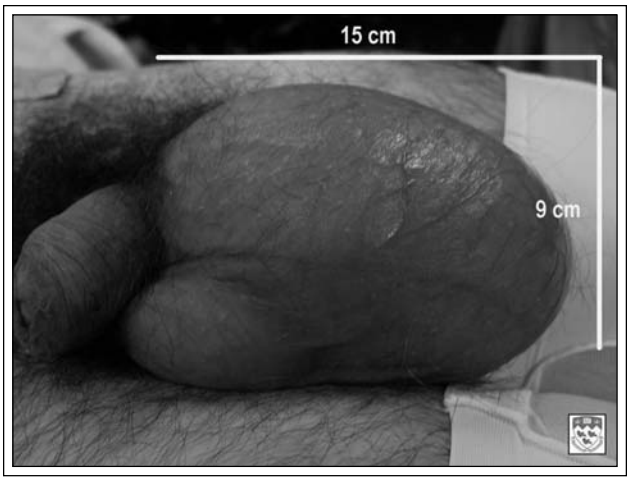

Figure 1. Large left scrotal mass displacing the right testicle.

original oblique inguinal incision was extended inferiorly toward the supra-scrotal area. The oblique nature of the incision allowed direct delivery of the large scrotal mass intact Figure 2. The resected specimen weighed 780 grams and measured 14.5 cm x 9 cm x 9.2 cm. histopathology evaluation revealed a mixed germ cell tumor, predominantly classic seminoma (90%) with a minor component of embryonal carcinoma (10%). Additionally, there were scattered microscopic foci of immature teratoma. Prominent vascular invasion was seen. There was no evidence of epididymal or tunica vaginalis invasion. All margins were free of tumor. The surgery was uneventful as well as the postoperative period. Over the subsequent 6 weeks, serial tumor marker values decreased by their respective half-lives to within normal values: AFP was 2.5 μg/L, μ-HCG was <2 IU/L and LDH was 180 units/L. After 14 months of follow up the patient has neither local recurrence nor systemic metastasis.

Figure 2. Left oblique inguinal incision which can be extended to the suprascrotal area.

Discussion

Scrotal violation has been defined as alteration of the normal lymphatic drainage of the testis as result of prior inguinal or scrotal surgery namely scrotal orchiectomy, hernia repair, testicular biopsy and varicocelctomy.[2] Consequently, those patients with scrotal violation have undergone extensive local surgery and or adjuvant chemo or radiotherapy to prevent an adverse outcome.[2,3]

Radical inguinal orchiectomy remains the standard and preferred approach for removal of testis cancer. Tumor spread can occur either through a hematogenously, through the blood vessels within the spermatic cord or through a lymphatic route. The use of an inguinal incision for orchiectomy allows proximal ligation of the spermatic cord and avoids scrotal violation. Large scrotal tumors may preclude delivery through a standard inguinal incision, especially if the incision is made transversely. A recent report has described the combined use of a transverse inguinal incision, for early clamping of the spermatic cord, followed by a midline scrotal raphe incision for orchiectomy of a large size, 1.6 kg seminoma.[1] Our approach using an oblique inguinal incision with extension towards surpra-scrotal area allowed removal of a tumor of similar size without using an additional second scrotal incision. If a scrotal incision deemed necessary, the plane between the tunica vaginalis and scrotal wall can be adequately dissected through the oblique inguinal incision. This approach may minimize the risk of tumor spillage due to scrotal violation.

Though tumor spillage due to scrotal violation at orchiectomy for mixed testicular cancer is a realistic concern, the actual impact on recurrence rates and, more importantly, survival rates remain to be fully evaluated. The incidence of local recurrence of nonseminomatous testis cancer has been reported in various series to be between 0-31.6%. Scrotal violation was associated with an increased risk for local recurrence mainly when residual tumor in the scrotectomy specimen was found.[4-9] No patient with implantation of a tumor in the scrotum was cured by hemi-scrotectomy alone and the majority of patients eventually required further chemotherapy.

One of the largest series addressed this issue done by Leibovitch et al.[4] In this retrospective review of 78 cases of scrotal violation among 1708 patients with nonseminomatous testis cancer that had undergone orchiectomy, a total of 56 patients (71.8%) underwent hemi-scrotectomy as part of treatment. A tumor was found in 6 of 56 hemi-scrotectomy specimens (10.7%) and 3 showed local recurrence. Of the 78 patients 5 (6.4%) had local recurrence, while 1 of 30 (3.3%) with scrotal specimens negative for tumor had recurrence in the groin. No patient treated by chemotherapy had local recurrence.

Capelouto et al[5] reviewed scrotal violation in a meta-analysis of peer review series between 1958 and 1993. Of 1182 included cases, 206 scrotal violations were noted. Overall, with a mean follow up from 22.6 to 116 months, there was no statistically significant difference between inguinal and scrotal orchiectomy in either the distant recurrence rate or survival rate. Furthermore, when stratifying for the seminomatous and nonseminomatous germ cell tumors, there were no significant differences between inguinal and scrotal violation patients in the local and distant recurrences, and survival. However this meta-analysis excluded other series in which the local recurrence very high with out legitimate justification.[6-9]

We believe it is prudent to respect the principles of surgical approach for removal of testicular mass suspicious of malignancy by avoiding scrotal violation. Since the prognosis of testicular cancer has been improving and patients are generally young with a long life expectancy, deviation from the standard surgical approach may have a long-term adverse outcome.

Conclusion

Testicular tumors may present as a scrotal mass of variable sizes. When performing orchiectomy for a large and malignant scrotal mass, a radical orchiectomy with an oblique inguinal incision allows early clamping of the spermatic cord and, with the option to extent the incision inferiorly towards the supra-scrotal area, inguinal delivery of the large tumor. Although an additional scrotal incision, after the spermatic cord is clamped at the inguinal level, is a feasible option to facilitate the removal of a large scrotal mass. In view of the potential risks of scrotal tumor spillage, it should be reserved for cases that even an extended oblique inguinal incision fails to allow the scrotal mass to be delivered for tumor removal. □

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