Inguinal Lymphnode Metastatic Testicular Seminoma: A Case Report and Review of Literature

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Abbreviations

CT Computed tomography
GCT Germ cell tumor
FNAC Fine needle aspiration cytology

Introduction

Testicular cancer comprises of 1–2% of the total male cancers. Testicular seminoma is the most common germ cell tumor affecting the testis comprising 40–45%. Inguinal metastases in case of testicular seminoma are a rare occurrence. Inguinal and or scrotal surgery may predispose to inguinal metastases due to altered lymphatic drainage. We report an unusual case of inguinal metastatic classical testicular seminoma following radical orchidectomy.

Case Report

A 30 years old male presented with a right inguinal mass of 5 months duration. His medical history revealed that he had undergone an orchidectomy for right testicular mass one and a half years ago which histopathologically proved to be a classical seminoma testis. He did not take any kind of adjuvant treatment thereafter. His clinical examination revealed a right scrotal orchidectomy scar and right inguinal nodal mass of 10×8 cm size. Rest of the clinical findings

were unremarkable. His investigations revealed normal values of human chorionic gonadotropin (β -hCG), alphafetoprotein (AFP) and lactate dehydrogenase (LDH). His staging CT scan of thorax, abdomen and pelvis (Fig. 1) revealed only a 7.8×4 cm sized conglomerated nodal mass in the superficial right inguinal region with no evidence of mediastinal or paraaortic lymphadenopathy. Right orchidectomy status was also confirmed. FNAC of the right inguinal mass was done which confirmed to be a metastatic seminoma testis. A right inguinal lymphnode dissection was done thereafter. The histopathology confirmed to be a case of inguinal metastatic classic seminoma testis with extracapsular spread to the surrounding adipose tissue (Fig. 2). Adjuvant chemotherapy in form of 3 cycles of PEB (cisplatin, etoposide and bleomycin) was instituted considering the metastatic nature of seminoma testis. There are no signs of recurrence as confirmed by CT scan and patient is fine when last seen 3 months ago.

Discussion

Testicular cancer comprises of 1–2% of the total male cancers. Testicular seminoma is the most common germ cell tumor affecting the testis comprising 40–45%. Histologically it can be subdivided into classic, anaplastic and spermatocytic types [1]. Usually, the testicular lymphatics drain along the gonadal vessels to the retroperitoneal nodes, which are located between the lower thoracic and lumbar vertebrae, including the renal hili and around the inferior vena cava and the aorta [2]. The lymphatics that accompany the testicular vessels exit the testis through the inguinal ring to the retroperitoneal para-aortic lymph nodes following typical patterns of spread according to the side of primary tumor [3]. Involvement of the iliac and inguinal nodes can

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Fig. 1 CT scan Pelvis showing right inguinal metastatic nodal mass

occasionally occur in a secondary retrograde fashion, usually when there are bulky retroperitoneal metastases [2].

Primary involvement of the iliac and inguinal nodes is rare and associated with tumor extension in the epididymis, breaching of the tunica vaginalis through to the scrotal wall or extension to the vas deferens. Direct inguinal metastases are also reported as a result of previous inguinoscrotal surgery [4] as in our case.

Usually the superficial inguinal nodes drain the skin from the lower abdomen, part of the buttocks and scrotum, the perineum and the penis. The deep inguinal nodes, which can be found under the fascia lata, are drained from the superficial nodes, legs and deep penile structures. However, following the surgery where the testicular lymphatics are damaged or disrupted as a result of dissection of the spermatic cord during orchidopexy, orchidectomy, hydrocele repair, varicocele repair or hernia repair, these lymphatics seek new collateral vessels for drainage. Injured lymphatics from scrotal incisions reanastomose with the testicular lymphatics and can therefore provide a direct route of spread to the inguinal nodes [5].

Ohtani and Gannon studied the microvasculature of the rat vas deferens and have described the arterial and venous drainage in great detail [6]. They found a subepithelial capillary network and it has been postulated that this capillary network exists in human. Lockett et al. postulated in his

report that seminoma may have spread along a similar sub-epithelial capillary network along the vas [7]. For these reasons radical inguinal orchidectomy is the procedure of choice for testicular tumors to avoid the sequelae associated with scrotal contamination.

In patients with a prior history of orchidopexy or scrotal surgery who have a testicular tumor, the incidence of inguinal metastases is unclear but has been reported in series varying from two percent [8] up to ten percent [9]. Daugaard et al. evaluated the incidence of inguinal lymph node metastases in 695 patients with stage I testicular cancer [8]. Two percent of patients developed inguinal node metastasis. Non-seminomatous GCTs more frequently invaded inguinal lymph nodes than seminoma. The routine management of the inguinal lymphatics (palpable or not) in patients with testicular tumors and a previous history of inguinal or scrotal surgery remains controversial, as a result of insufficient data [4]. Prophylactic inguinal lymphadenectomy is rarely mentioned in the literature. In some series, patients have been found to have positive inguinal nodes with no retroperitoneal lymphadenopathy, supporting the need to perform routine ipsilateral inguinal lymphadenectomy even when the retroperitoneal nodes are clear [4, 10]. Wheeler et al. advocated ipsilateral inguinal and bilateral retroperitoneal node dissection as the primary therapy for non-seminomatous testicular tumor with a previous history of scrotal and inguinal procedures [4]. Another series in which 20 cases of testicular tumor and previous scrotal surgery were presented, failed to document the incidence of inguinal lymphadenopathy [11]. They concluded that additional treatment to the inguinal nodes was not required but most of their patients underwent immediate radiation therapy or chemotherapy with none undergoing groin dissection. The true incidence of inguinal metastases in their study is therefore unknown. It was suggested that failure to perform prophylactic inguinal node dissection does not adversely affect patient survival and regular groin palpation and dissection of any suspicious lymph nodes was recommended. If positive, cisplatin, vinblastine and bleomycin chemotherapy is given. Mianne et al. also suggested that

Fig. 2 Histology of the excised right inguinal nodal mass showing the typical picture of classic seminoma (**a**) low power and (**b**) high power

prophylactic ipsilateral inguinal dissection is not necessary in patients with non-seminomatous testicular tumors with a history of inguinal or scrotal surgery, owing to the efficacy of primary and secondary chemotherapy [12]. However, for testicular seminoma they advocated additional inguinoscrotal radiotherapy. The low incidence of inguinal lymph node metastasis, morbidity rate following radical ilioinguinal dissection, the accessibility of the inguinal nodes to follow-up examination and the availability of highly successful multimodal therapy make expectant management of the clinically negative groin an attractive alternative. A diagnosis of inguinal node metastases is usually made by an excision biopsy of the nodes, but fine needle aspiration (FNA) has also been used.

Conclusion

Inguinal lymph node metastases from testicular cancer are rare. A history of inguinal or scrotal surgery may predispose involvement of the inguinal nodes as a result of altered patterns of lymphatic drainage. The routine management of inguinal lymph node metastases (palpable or not) in patients with testicular tumors and a previous history of inguinal or scrotal surgery remains controversial, with no consensus amongst those treating these patients. During radical inguinal orchidectomy, the surgeon should be careful to minimize the handling of the testis and ensure high ligation of the spermatic cord up to the internal inguinal ring to reduce the risk of inguinal lymph node metastasis.

Competing interests The authors declare that they have no competing interests.

Author's contributions SS wrote the original manuscript and interpreted the patient data with regard to the haematological and radiological diagnosis. HB analysed the patient data. All the authors have read and approved the final manuscript.

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Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.