METASTATIC INGUINAL LYMPH NODES IN NON-SEMINOMATOUS GERM CELL TESTICULAR TUMOUR WITH PREVIOUS HISTORY OF ORCHIOPEXY

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ABSTRACT

The lymphatics from testicles accompany the testicular vessels, exit the testis and course along the inguinal ring along spermatic vein and drain into the retroperitoneal lymph nodes between the lower dorsal and lumbar vertebra around the aorta, IVC and renal hilum. In testicular tumours, metastatic retroperitoneal lymph nodes occur in pre and para-aortic, pre and paracaval and at renal hilum. The iliac and inguinal lymph node involvement occasionally occurs in a secondary retrograde fashion when there are bulky retroperitoneal lymph nodes. Inguinal lymph nodal metastasis in testicular tumour is a rare occurrence and can occur due to altered lymphatic drainage following inguinal and or scrotal surgery. The testicular lymphatics are disrupted or damaged during orchiopexy, orchiectomy, hydrocele repair, varicocelectomy or hernia repair. These lymphatics seek new collateral vessels for drainage. These injured lymphatics from scrotal incisions re-anastomose with the testicular lymphatics providing a direct route of spread to the inguinal lymph nodes. We report a case of a 36- year old male patient, who presented with left testicular neoplastic mass with multiple metastatic left inguinal lymph nodes. There was previous history of left orchiopexy for undescended left testis in childhood.

Case Report

A 36- year old male patient presented with painless swelling in left scrotum since 1.5 months and hard swelling in left inguinal region. There was previous history of left orchiopexy for undescended left testis in childhood. On examination, left testis was enlarged and hard in consistency. Well defined hard swelling of size approx. 5 x 4 cms was noted in left inguinal region.

Ultrasonography (USG) of scrotum done with linear high frequency 8-12 MHz probe showed normal right testis (Fig. 1A). Left testis was enlarged and occupied by a large solid mass of size approx. 35.8 (length) x 25.6 (anteroposterior) x 32.4 mm (transverse) showing marked heterogeneous echotexture with multiple small anechoic areas of necrosis (Fig. 1B). Few echo-reflective calcific foci were also seen. Left epididymal head was enlarged and bulky due to a solid mass measuring approx. 20.1 (anteroposterior) x 15.4 (transverse) x 18 (cranio-caudal) showing heterogeneous echotexture with mild central vas-cularity (Fig. 2,3A). Left testicular mass showed mild peripheral vascularity (Fig. 3B). No hydrocele was noted. On elastography, right testis appeared soft while enlarged left testis appeared predominantly hard in consistency with central portion appearing soft (Fig. 4).

A large well defined solid mass with slight lobulated outlines measuring approx. 57.8 (length) x 40 (anteroposterior) x 49.6 (transverse), was noted in left inguinal region - suggestive of enlarged lymph node showing

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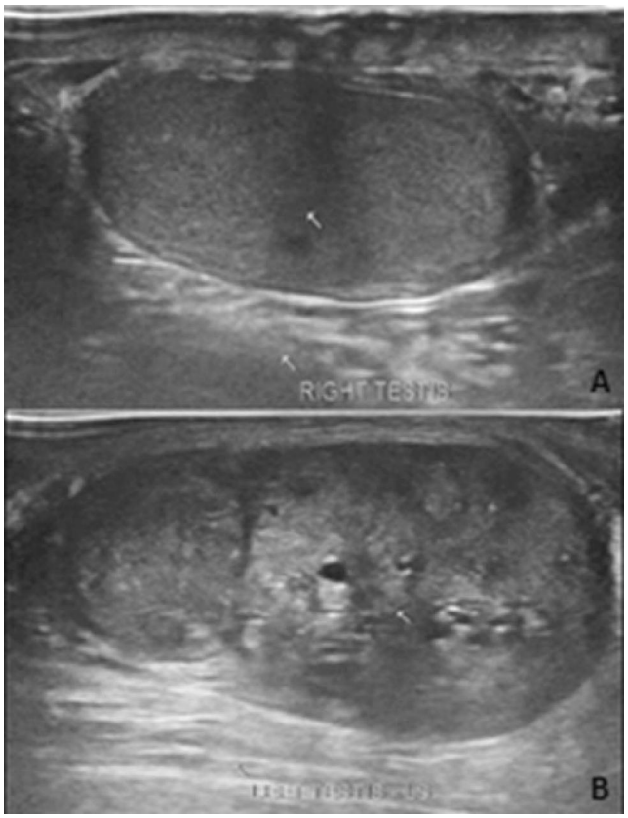

Figure 1: USG right testis **(A)** showing normal testis. USG left testis with epididymis **(B)** showing enlarged and bulky left testis and epididymis head due to a large solid mass with heterogeneous echotexture.

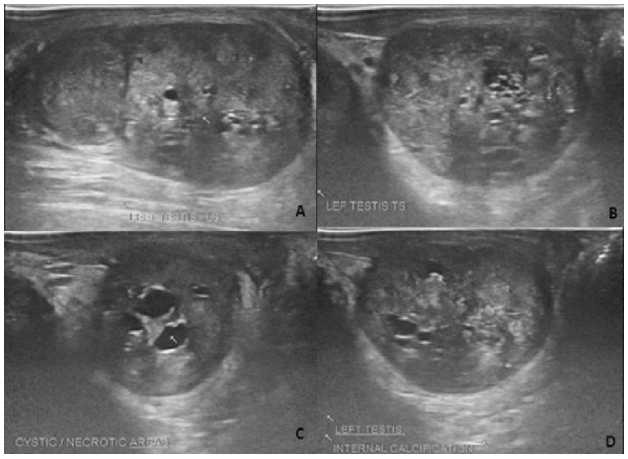

Figure 2: USG of left testis **(A)** Longitudinal section and **(B,C and D)** transverse sections showing enlarged testis due to a mass of heterogeneous echotexture showing central small cystic areas of necrosis and a few calcific foci.

peripheral vascularity on Doppler. Another lymph node measuring approx. 35 (length) x 19 (antero-posterior) mm was noted adjacent to the above mentioned lymph node(Fig. 5).

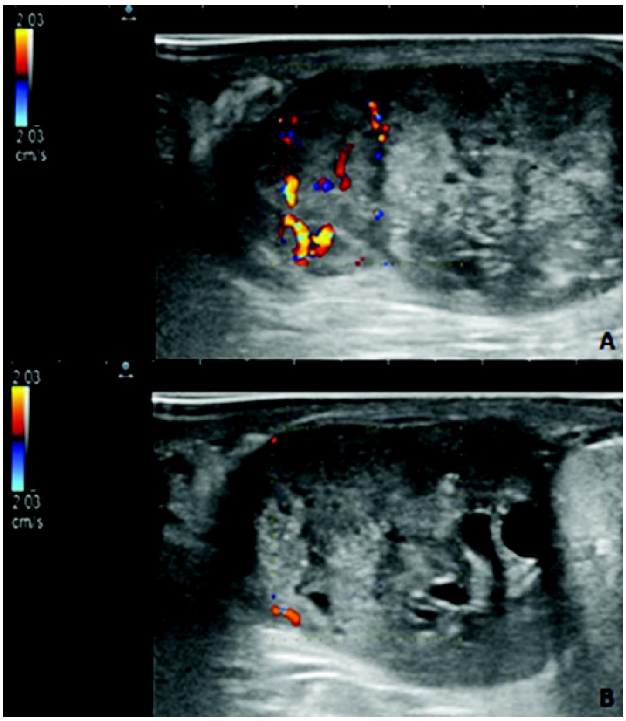

Figure 3: Colour Doppler of left scrotum. **(A)** Longitudinal section of left epididymal head showing mild peripheral and central vascularity. **(B)** Longitudinal section of left testis showing mild peripheral vascularity.

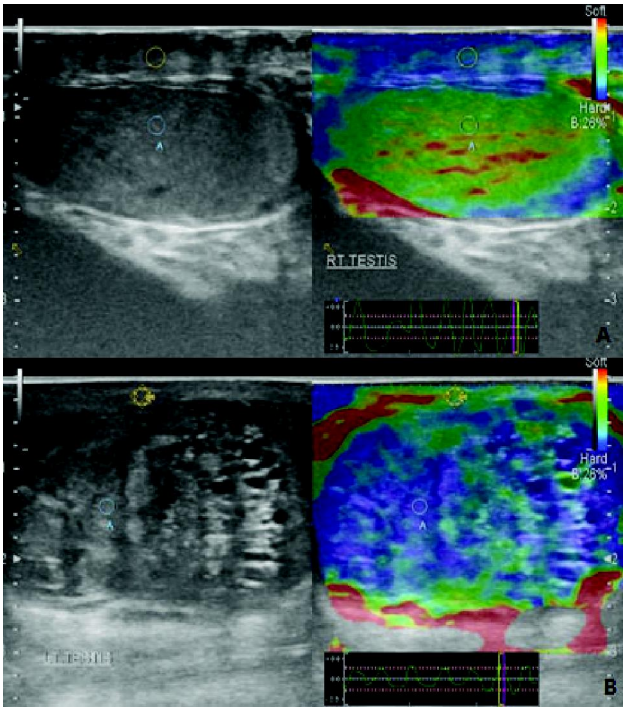

Figure 4: Elastography of bilateral testis. **(A)** Right testis showing normal soft appearing testis. **(B)** Left testis - testicular mass appearing hard on elastography. Real time strain (quantitative method).

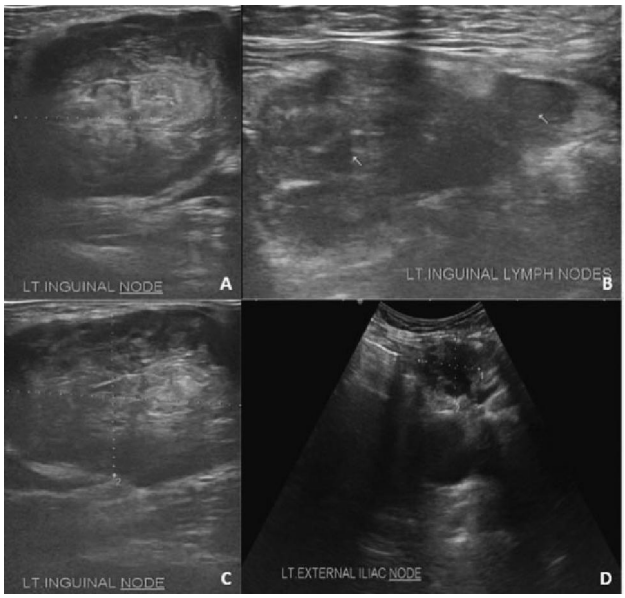

Figure 5: Metastatic lymph nodes. **(A, B and C)** Left inguinal lymph nodes and **(D)** External iliac lymph node showing enlarged lymph nodes with heterogeneous echotexture with replacement of echogenic fatty hilum.

Computed Tomography (CT) of abdomen and pelvis with inguino-scrotal region (Fig. 6-8) showed enlarged and bulky left testis due to a heterogeneously enhancing mass measuring approx. 38 (anteroposterior) x 38 (transverse) mm. Left epididymal head and left

Figure 6: Axial contrast enhanced CT scan of abdomen and inguino-scrotal region. **(A)** At the level of renal hilum showing metastatic left para-aortic and pre-aortic lymph nodes with heterogeneous enhancement and central non enhancing areas of necrosis. **(B)** Pelvis showing metastatic left external iliac lymph nodes. **(C)** Showing linear scar in left inguinal region due to previous orchidopexy.

Figure 7: (A) Axial contrast enhanced CT scan of inguino-scrotal region. **(A)** Metastatic left inguinal lymph node with heterogeneous density and central non enhancing areas of necrosis . **(B)** Enlarged and bulky left testis due to a heterogeneously enhancing solid mass with central non enhancing necrotic areas.

Figure 8: Coronal contrast enhanced CT scan of abdomen and inguino-scrotal region. **(A)** Heterogeneously enhancing left para-aortic lymph nodes. **(B)** Coronal Enlarged and bulky left testis due to a heterogeneously enhancing solid mass with central non enhancing necrotic areas.

spermatic cord were thickened. A large heterogeneously enhancing left inguinal lymph node measuring approx. 54 (anteroposterior) x 41 (transverse) mm was noted showing small central hypodense areas of necrosis. Lymph nodes measuring approx. 27x 15 mm, 14 x 11 mm, 23x17 mm and 11 x 10 mm were noted in its vicinity. Left external iliac lymph nodes of size 29 x 26 mm, 18 x 165 mm and 16x 6 mm; inter aortocaval lymph node 12 x 9 mm; retrocaval lymph nodes of size 8x6 mm and 9x9 mm were noted. Rest abdomen appeared normal. An obliquely placed scar was seen in left inguinal region due to previous orchidopexy. Findings were suggestive of left testicular neoplastic mass with metastatic retroperitoneal, left external iliac and inguinal lymph nodes.

β-HCG was 214 mIU/ml (normal range ,10mIU/ml); LDH 740 IU/L (70-240 IU/L) ; AFP 317 IU/ml (0.5-5.5 IU/ml). Both β-HCG and AFP were raised, which is seen in non seminomatous germ cell tumour.

Left high orchidectomy was performed. Biopsy showed mixed germ cell tumour (malignant teratoma with embryonal carcinoma with microfoci of yolk sac tumour and seminoma.

On histopathological examination, sections showed complete replacement of testicular parenchyma by a mixed germ cell tumour with thinned out tunica and a few compressed seminiferous tubules at the periphery with occasional foci of intratubular malignant germ cells. The tumour showed areas of mature teratoma with squamous epithelial, glandular, carti-

laginous differentiation with foci of malignant squamous epithelium, immature cartilage with extensive areas of necrosis and hemorrhage. Sheets of undifferentiated cells, diffused arranged in glandular, and trabecular pattern. The tumour cells were large with hyperechoic pleomorphic nuclei with abnormal mitosis. Occasional seminoma like foci were seen showing prominent nucleoli and abundant vacuolar cytoplasm.

Post surgical excision, 6 cycles of chemotherapy with BEP regime - Bleomycin, Etoposide and Cisplatin was planned.

Introduction

Inguinal lymph node metastasis from testicular carcinoma is rare, especially in patients with no previous surgery in the scrotum or inguinal region.

The lymphatics accompany the testicular vessels, exit the testis and course along the inguinal ring along spermatic vein and drain into the retroperitoneal lymph nodes between the lower dorsal and lumbar vertebra around the aorta, IVC and renal hilum.[1] Hence, in testicular tumours, metastatic retroperitoneal lymph nodes occur in pre and para-aortic, pre and para-caval and at renal hilum. The iliac and inguinal lymph node involvement occasionally occurs in a secondary retrograde fashion when there are bulky retroperitoneal lymph nodes.[2]

Variation in this regular anatomical pattern is usually created by surgery in scrotal or inguinal region like orchidopexy, trans-scrotal biopsy, hydrocele surgery, varicocelectomy and by extension of the tumour through the testicular capsule or invasion into the epididymis or spermatic cord.[3] In such cases the patient can develop metastatic LN in inguinal region.[4]

The incidence of inguinal metastatic lymph nodes in patients with prior history of scrotal surgery or orchiectomy having a testicular tumour ranges from 2-10%.[3]

Discussion

Inguinal LN can be superficial and deep. Superficial inguinal lymph nodes drain the skin of the lower abdomen, penis, scrotum, perineum and part of the buttock area. The deep inguinal lymph nodes are located beneath fascia lata and receive lymphatic drainage from lower extremities. They also receive small lymphatic from penis and efferent vessels from the superficial inguinal lymph nodes.[3]

Testicular carcinoma comprises of 1-2 % of the total male cancers. Testicular seminomas comprise 40-45% of testicular tumours and are the most common germ cell tumour. Inguinal lymph nodal metastasis in testicular tumour is a rare occurrence and can occur due to altered lymphatic drainage following inguinal and or scrotal surgery.[1]

Primary metastatic involvement of iliac and inguinal lymph node is rare and occurs due to extension of tumour in the epididymis or vas deferens and breaching of the tunica vaginalis through the scrotal region. The testicular lymphatics are disrupted or damaged (during orchiopexy, orchiectomy, hydrocele repair, varicocelectomy, hernia repair). These lymphatics seek new collateral vessels for drainage. These injured lymphatics from scrotal incisions re-anastomose with the testicular lymphatics providing a direct route of spread to the inguinal lymph nodes.[5]

Non-seminomatous germ cell tumour frequently involved inguinal lymph node than seminoma.

The management of inguinal lymph nodes (palpable or not) in patients with testicular tumour with previous history of inguinal or scrotal surgery is controversial with no sufficient data.[6,7]

Prophylactic inguinal lymphadenectomy is rarely mentioned. Metastatic inguinal lymph node without retroperitoneal lymphadenopathy can occur supporting the need to perform ipsilateral inguinal lymphadenectomy. Wheeler et al suggested bilateral retroperitoneal lymph node and ipsilateral inguinal lymph node dissection as the primary therapy for non seminomatous germ cell tumours with a previous history of scrotal or inguinal surgery.[6]

Another series of 20 cases of testicular tumours with previous scrotal surgery without inguinal lymphadenopathy concluded that additional inguinal lymph node dissection is not required. Most of these patients underwent immediate radiation or chemotherapy. Failure to perform prophylactic inguinal lymph node dissection does not adversely affect patient's survival. They recommended regular groin palpation and dissection of suspicious inguinal lymph nodes and chemotherapy with Cisplastinum, Vin-

blastine and Bleomycin if lymph node are metastatic. Due to low incidence of metastatic lymph nodes the accessibility of inguinal nodes during follow up examination and high morbidity rate following radical ilio-inguinal dissection, multimodality therapy in management of clinically negative groin becomes an attractive alternative.[8]

Conclusion

Testicular cancer causing metastasis in previous inguinal or scrotal surgery due to altered patterns of lymphatic drainage. During radical inguinal orchiectomy, the surgeon should minimize handling of testis and do high ligation of spermatic cord upto internal inguinal lymph node to decrease the risk of metastatic inguinal lymph nodes.

Conflicts of Interest: Nil

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