ULTRASOUND TESTES FOR CANCER, IT'S NOT ALWAYS A MASS! A PICTORIAL REVIEW OF THE VARIED APPEARANCES FOR TESTICULAR CANCER CONFIRMED BY HISTOLOGY OR METASTATIC PROCESS.

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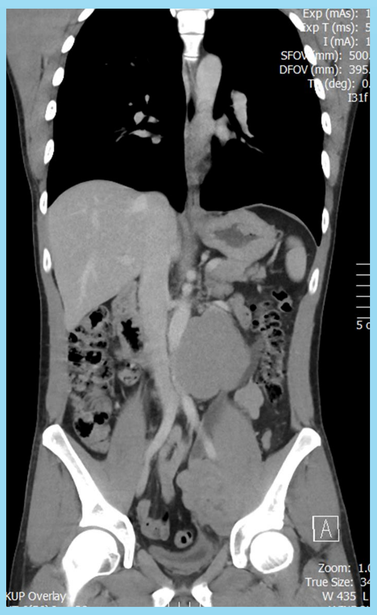
INTRODUCTION, AIM AND METHOD

The National Institute for Health and Care Excellence (NICE) (2015) recommends that an ultrasound scan of the testes for cancer should be considered with men with unexplained persistent symptoms. Pozza et al (2023) also consider ultrasound to be the gold standard imaging assessment for testicular lesions. Belfield and Findlay-line (2022) state that testicular tumours are the most common cancer in young men and whilst ultrasound is a first line investigation, histology following orchidectomy remains the gold standard for tumour characterisation. This pictorial review aims to be a guide for health professionals, sonographers and clinicians with an interest in scrotal ultrasound showing how varied the appearances of testicular cancer can be.

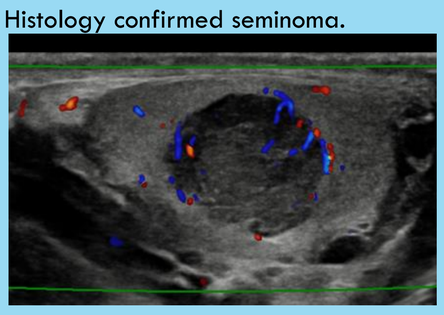
A variety of appropriate ultrasound cases were identified and assessed for suspected testicular cancer during the period of 2020-2025 and were collated for further review. All cases were imaged at the Great Western Hospitals NHS Foundation Trust with urological referral to tertiary centres for further investigation including histology. The cases were then reviewed by clinical experts comparing known histology results and appearances on ultrasound and other imaging. A number of cases with pathologies such as seminomas, spermatocytic seminomas, mixed germ cell tumours, embryonal carcinomas Sertoli cell tumours and lymphoma were selected for presentation. In some cases, imaging had initially suspected orchitis and only after follow up ultrasound that testicular cancer was suspected.

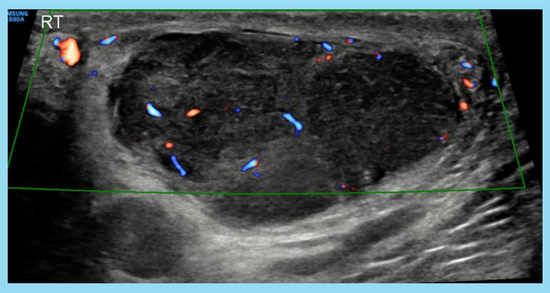
SEMINOMAS



Clinical History: 34 year old working abroad swollen thigh and abdomen, painful testis, flown back to UK day before.
Had ultrasound and CT same day confirming a testicular mass and metastatic spread with masses in the para aortic and groin lymph nodes.

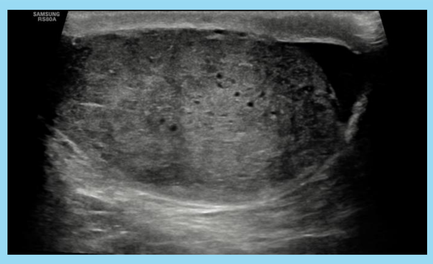
Histology confirmed seminoma.

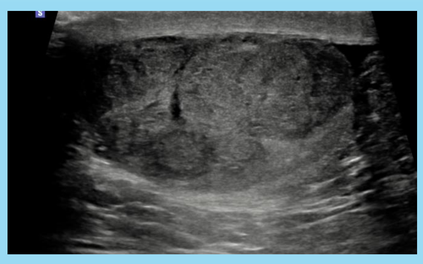




Clinical History: 75 year old 2 weeks swelling painful testis. Ultrasound suspected malignancy, although necrotic testis fell within the differential.

Histology confirmed seminoma.





Clinical History: 37 year old with history of swollen testis for three weeks, the pain became worse and GP treated him with 10/7 of doxycycline.

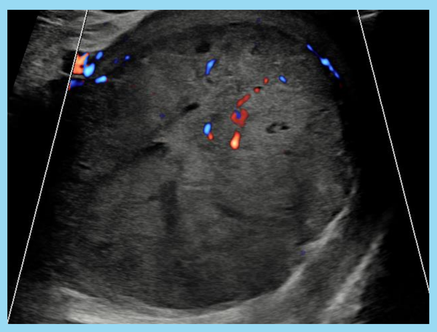
Initially thought to be severe orchitis with no focal abnormality but a follow up scan shows discrete masses developing.

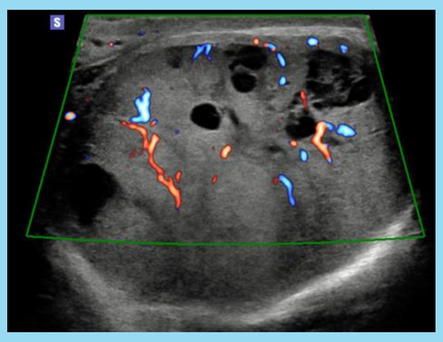
Histology confirmed seminoma.

MIXED GERM CELL TUMOURS

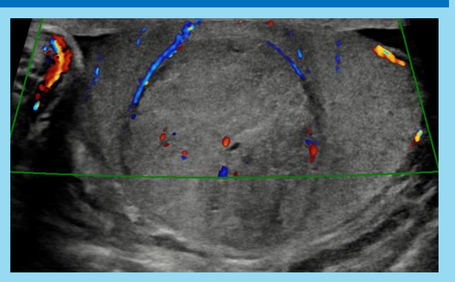
Clinical History: Painful testicle-enlarged, rock-like testicle. Admitted to ED for testicular Torsion, underwent emergency surgery, discomfort the last 4 weeks and worsening.

Initially though to have orchitis/complications due to surgery with scan on the right, scan on the left 6 weeks later showed an enlarging testis with cystic spaces. Patient underwent surgery and was found to have a mixed non-seminomatous germ cell tumour (embryonal carcinoma, yolk sac tumour).



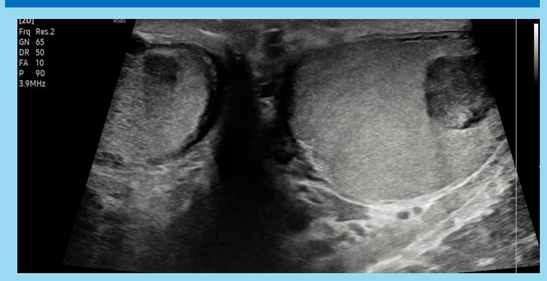


SERTOLI CELL TUMOUR



Clinical History: 26 year old history of knock/trauma noticed lump on testis. CT showed no metastatic spread.

Histology confirmed mixed germ cell tumour composed of approximately 90% embryonal carcinoma, 5% yolk sac tumour post pubertal type and 5% teratoma.



Clinical History: 38year old left a lump on the left testes, heavy feeling and occasional pain, no symptoms of infection, some firmness/irregular feeling lower testes and some tenderness.

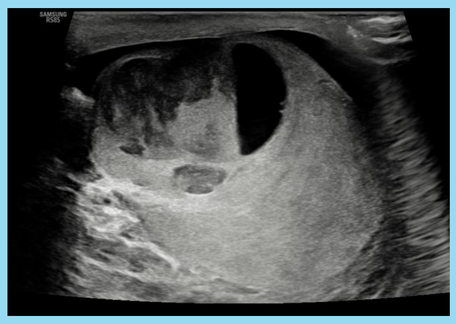
Histology confirmed Sertoli cell tumour.

Patient went on to have left orchidectomy with monitoring for right with consideration of sparing surgery.

SPERMATOCYTIC TUMOUR

Clinical history: Enlarged, irregular, tender right testicle. On examination he has an enlarged testicle with the superior pole, distorted and irregular, firm to palpate.

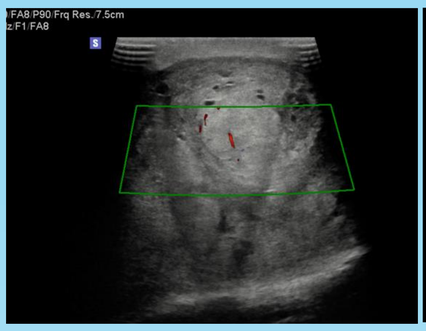
Histology confirmed spermatolytic tumour.

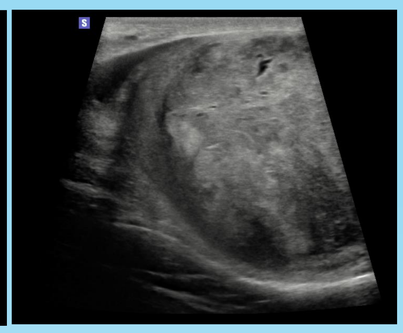


CHORIOCARCINOMA

Clinical History : Increasing left testicular swelling, along with pain. Family history of hydrocele. Heterogenous mass seen on ultrasound. CT scan showed some lymphadenopathy, b-HCG of over 40000.

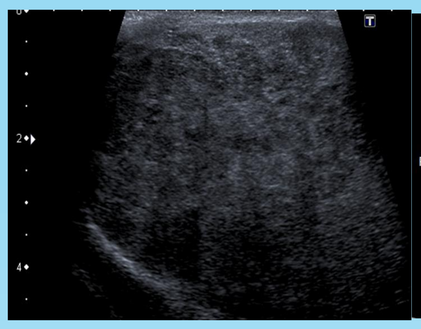
Histology confirmed choriocarcinoma.

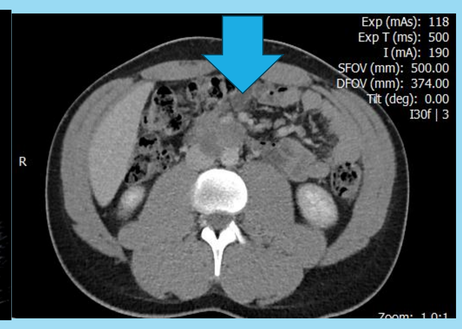




EMBRYONAL CARCINOMA

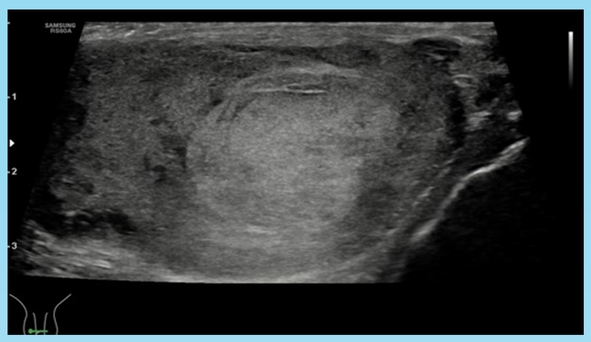
Clinical History: 22 year old recent trauma, swollen testis. Ultrasound showed enlarged heterogenous testis, no focal mass but concern for underlying malignancy. CT was performed showing enlarged para aortic lymph nodes.
Histology confirmed *embryonal carcinoma*





LYMPHOMA INVOLVEMENT OF THE EPIDIDYMIS AND TESTICLE

Clinical History : Diagnosis of lymphoplasmacytic lymphoma, new testicular swelling. Concerning for lymphoma or any other cause identifiable like epididymo-orchitis.
Patient continued to be treated for lymphoma.



CONCLUSION

This pictorial review has multiple examples of testicular cancer confirmed by histology or metastatic process. Although largely testicular masses, testicular cancer can have complex appearances and can mimic other pathology such as orchitis. Follow up scans or specialist referral may be appropriate if there is uncertainty.

References:

NICE (2015) *Recommendations organised by site of cancer | Suspected cancer: recognition and referral | Guidance | NICE*. https://www.nice.org.uk/guidance/ng12/chapter/Recommendations-organised-by-site-of-cancer#urological-cancers.

Belfield, J. and Findlay-Line, C. (2022) *Testicular Germ Cell Tumours—The role of Conventional Ultrasound, Cancers*, 14(16), p. 3882. https://doi.org/10.3390/cancers14163882.

Pozza, C. *et al.* (2023) *Multiparametric ultrasound for diagnosing testicular lesions: everything you need to know in daily clinical practice*, Cancers, 15(22), p. 5332. https://doi.org/10.3390/cancers15225332.

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