AMSER Rad PathCase of the Month March 2019

Left Testicular Seminoma

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Patient Presentation

HPI:

- 29 y.o. Male presenting with an enlarging, firm left testicular mass initially discovered on self examination 3 months ago.
- In addition to the mass, the man describes an associated intermittent, throbbing pain in his left testicle.
- He denies any recent fever, chills, or trauma.

Physical Exam Findings:

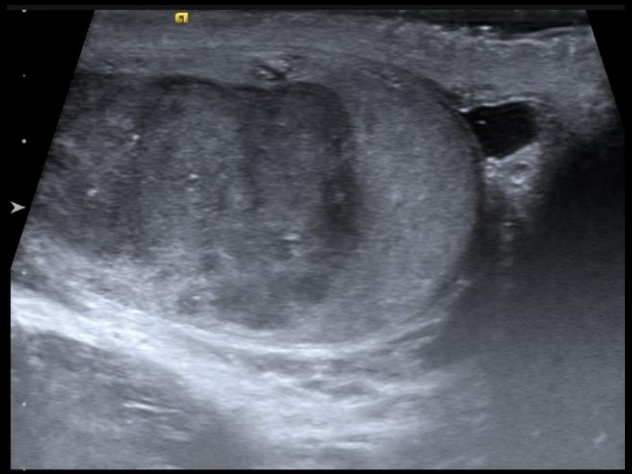
- Firm, painless mass in the left testicle measuring approximately 3.0 cm.
- The mass does not transilluminate.
- There is no change in the consistency of the mass with valsalva or recumbency.

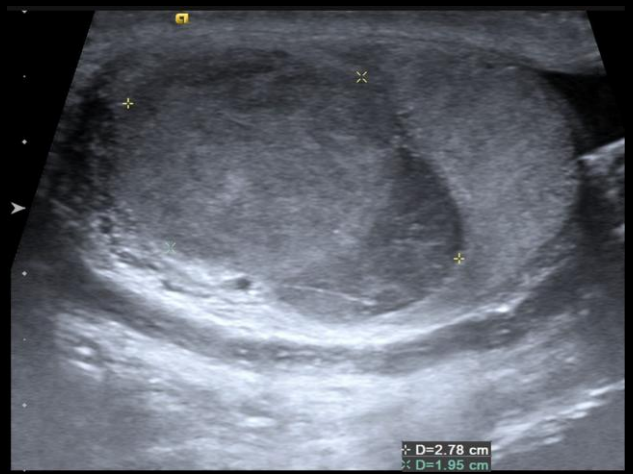
Pertinent Labs

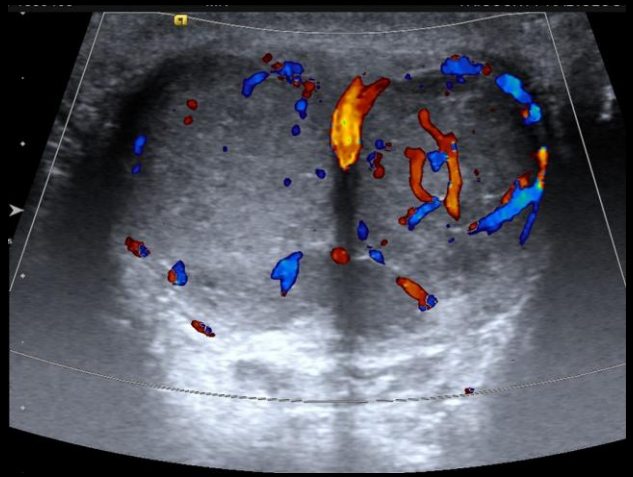
AFP, HCG, and LDH were all within normal limits.

What is the appropriate imaging modality of choice for initial examination of a testicular mass?

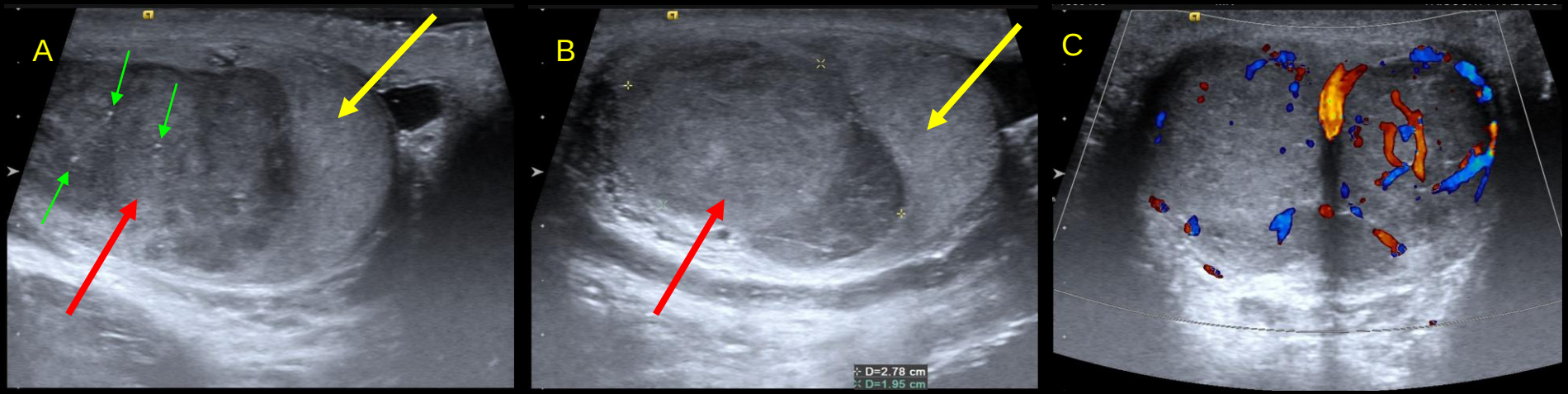
Testicular Ultrasound w/ Color Doppler







Testicular Ultrasound w/ Color Doppler

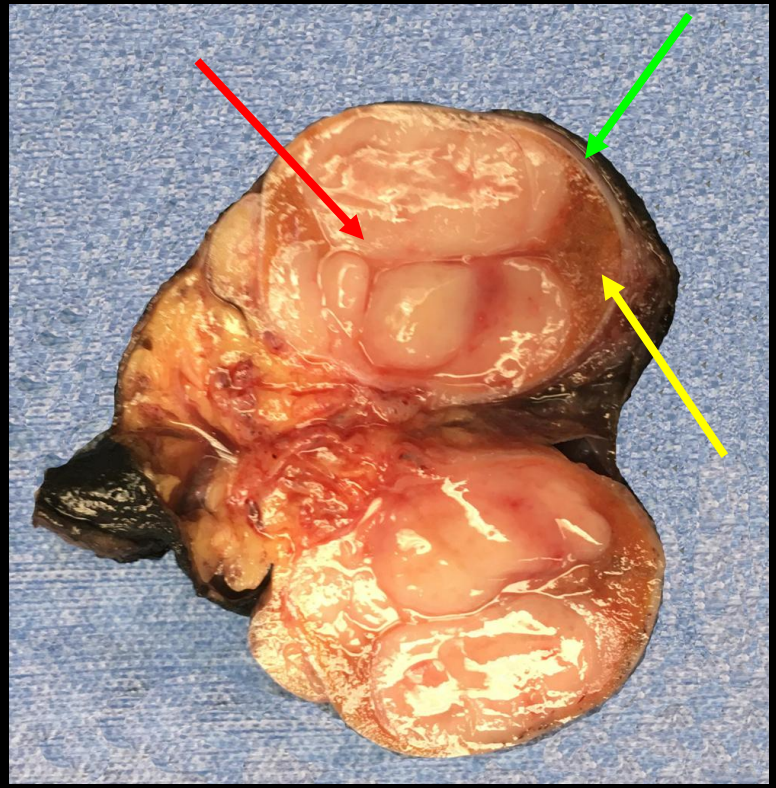


- Sagittal grayscale images (A, B) demonstrate a multilobulated, heterogeneous mass affecting the majority of the left testicular volume, measuring 2.8 cm x 1.95 cm (red arrows).
- A small amount of normal testicular parenchyma, which appears hyperechoic relative to the more hypoechoic tumor bulk, can be noted inferior to the tumor itself (yellow arrows).
- Small, punctate microcalcifications can also be noted within the tumor (green arrows).
- The axial image (C), which has been enhanced with color doppler, demonstrates the increased vascularity of the left testicle when compared to the right. This is due to the inherent vascularity of the tumor, which has replaced normal testicular parenchyma.

DDX

- Seminomatous Germ Cell Tumor
- Nonseminomatous Germ Cell Tumor
- Teratoma

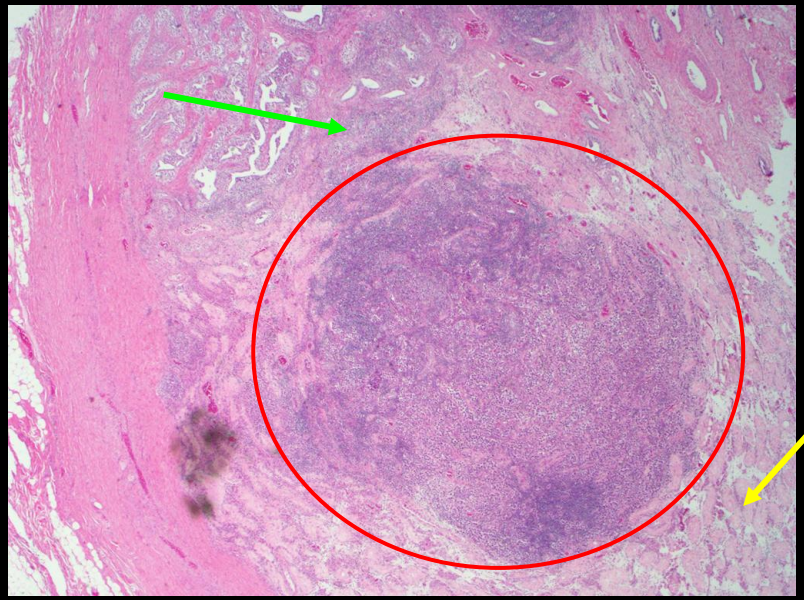
Pathology (Gross)

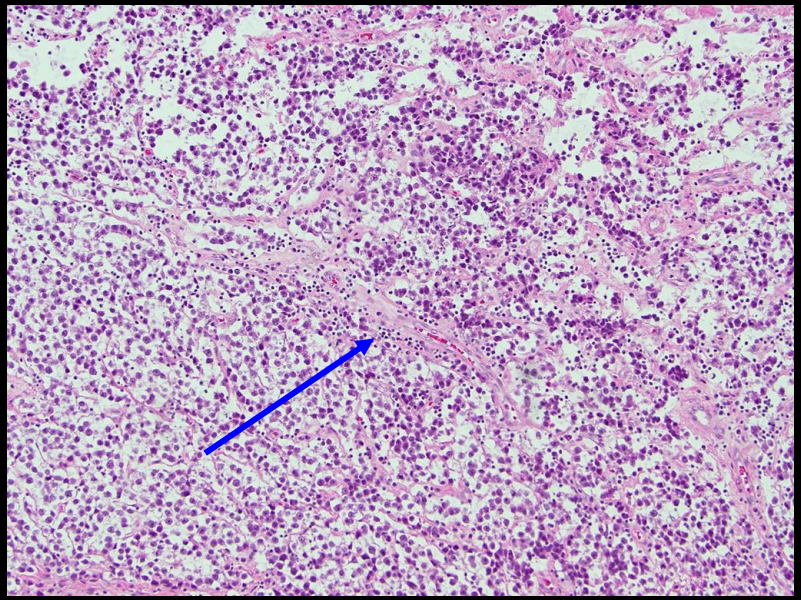


Specimen: Radical Orchiectomy

- Multilobulated, tan/white fleshy mass (red arrow) with a small amount of normal parenchyma inferiorly (yellow arrow).
- The tumor appears contained within the tunica albuginea (green arrow).
- The tumor is solid without any apparent areas of necrosis or hemorrhage.
- The classic "fish flesh" appearance of the lesion is due to the presence of infiltrating lymphocytes.

Pathology (Micro)





- Biphasic appearance to the tumor (red circle) with nests of uniform tumor cells (clear cytoplasm) intermixed with dark patches of lymphocytes.
- Normal testicular seminiferous tubules can be noted outside the margins of the tumor mass (yellow arrow).
- The tumor cells appear to track proximally into the rete testis (green arrow).
- Malignant seminoma cells are separated by fibrous septae, which contain tracks of lymphocytes and plasma cells (blue arrow).
- The seminoma cells have abundant clear cytoplasm (glycogen) and large central nuclei.
- There is no evidence of lymphovascular invasion.

Final Dx

Left Testicular Seminoma

Testicular Seminoma

- Seminomas are germ cell neoplasms of the testicle, representing 45% of all testicular cancers. They also represent the most common non-hematologic malignancy in males between the ages of 15 - 49 years old.

- The tumor originates from the germinal epithelium of the seminiferous tubules. Normal-appearing testicular parenchyma adjacent to the tumor bulk often contains intratubular germ cell neoplasia (ITGCN).

- The most common presentation is a young male in his mid-twenties with a newly discovered painless testicular mass. Testicular pain is reported in 20% of cases.

- Management is universally radical orchiectomy. Post-operative short-term cisplatin-based chemotherapy vs. radiotherapy is often optional, depending upon the extent of disease. The cure rate is 95% in Stage I & II cancers.

Testicular Seminoma

- The most common initial pattern of metastatic spread for testicular neoplasms is to the retroperitoneal and/or paraaortic lymph nodes. Thus, a screening CT scan is often the crucial imaging follow-up for newly diagnosed testicular cancer.

- The risk of testicular cancer is increased in certain patient populations, e.g. cryptorchidism, Klinefelter's syndrome (XXY), and mumps orchitis. Testicular microlithiasis can also substantially elevate the risk of testicular germ cell tumors, particularly when found in the presence of other risk factors.

- The AAFP does not recommend screening asymptomatic males for testicular cancer.

- The ovarian analogue to a testicular seminoma is a dysgerminoma.

Testicular Seminoma

- Blood tests for tumor markers are often drawn in patients presenting with a painless testicular mass, namely AFP, HCG, and LDH.
  - AFP: pure seminomas do not have elevations in AFP, ergo an increased AFP is indicative of a non-seminomatous component to the tumor or possible liver metastasis. This must be taken into careful consideration when staging testicular seminomas.
  - LDH: elevated in 40-60% of testicular germ cell tumors (GCTs). It is largely nonspecific in regards to nonseminomatous germ cell tumors, but it may be the only tumor marker elevated in seminomas. Its degree of elevation in advanced seminomas is frequently used as a marker for prognostication/risk stratification.
  - HCG: the most commonly elevated tumor marker in testicular cancers. HCG is elevated in 10-20% of seminomatous GCTs and represents an overall increase in tumor burden, but does not represent an increase in metastatic potential. The HCG normally returns to baseline after tumor resection if no metastatic disease is present.
  - An additional marker for seminomas is placental alkaline phosphatase (PLAP). PLAP is elevated in 40% of testicular seminomas. It is also considered the marker with the highest incidence and sensitivity for testicular seminomas.

References

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