

# Diagnostic Imaging Pathways - Scrotal Mass

## Population Covered By The Guidance

This pathway provides guidance on the imaging of adult male patients with a scrotal mass.

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## Quick User Guide

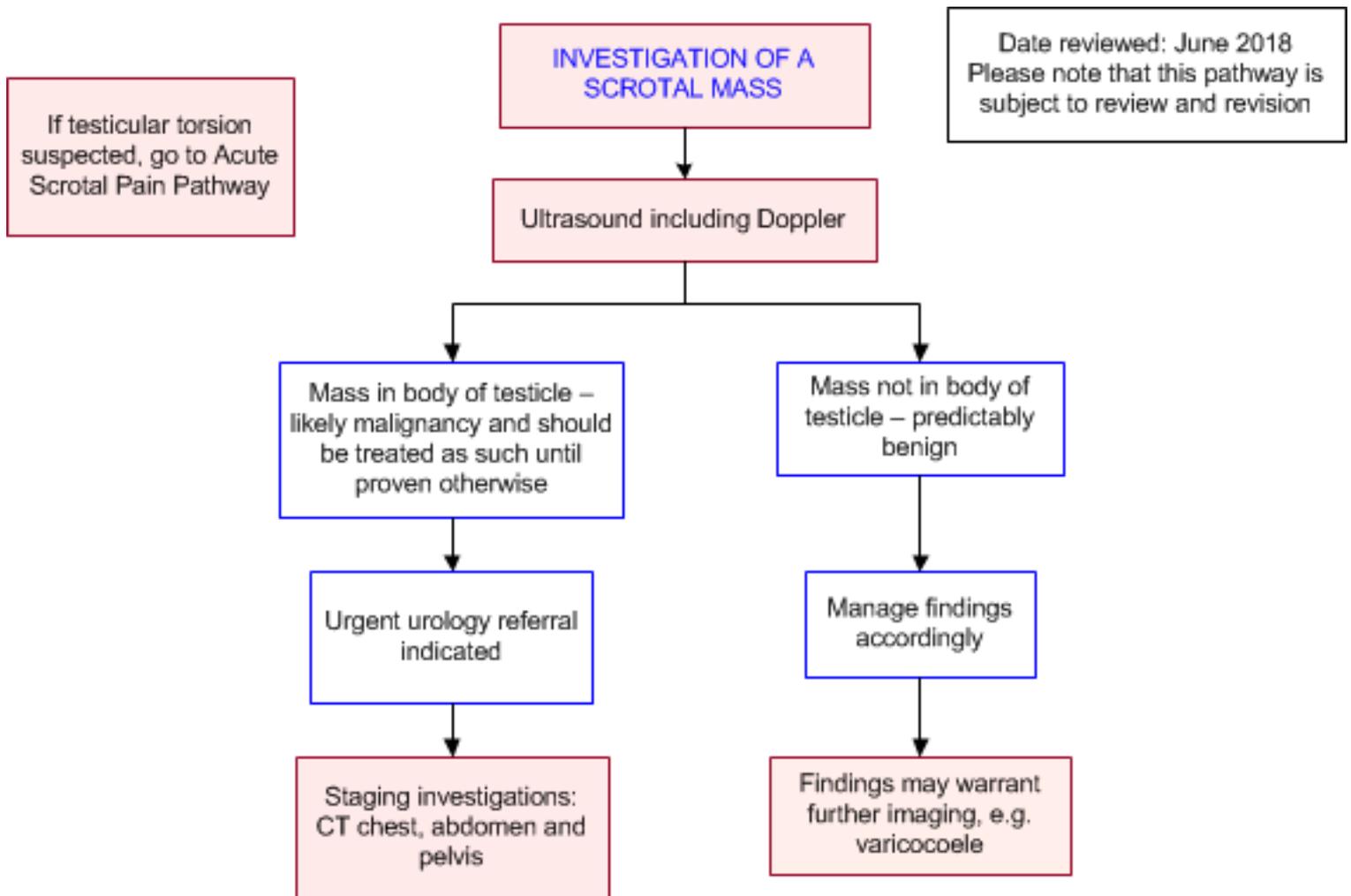
Move the mouse cursor over the **PINK** text boxes inside the flow chart to bring up a pop up box with salient points.

Clicking on the **PINK** text box will bring up the full text.

The relative radiation level (RRL) of each imaging investigation is displayed in the pop up box.

SYMBOL	RRL	EFFECTIVE DOSE RANGE
	None	0
	Minimal	< 1 millisieverts
	Low	1-5 mSv
	Medium	5-10 mSv
	High	>10 mSv

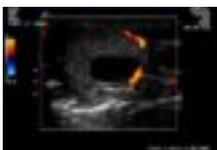
## Pathway Diagram



## Image Gallery

*Note: These images open in a new page*

1



### Testicular Cyst

Image 1 (Ultrasound): Left testicular cyst with no discernable wall or flow.

2



### Testicular Tumour

Image 2 (Ultrasound): Solid and cystic lesion with thick walls and marked vascularity in some areas. The appearances are consistent with a tumour.

3a

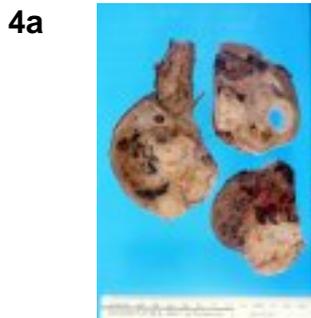


### Testicular Tumour

Image 3a: Orchidectomy specimen showing complete replacement of the normal testicular parenchyma with the classical "cut-potato" appearance of a seminoma. The tunica albuginea is intact.



Image 3b (H&E, x2.5): Histological section of a seminoma showing groups of malignant cells with large nuclei and prominent nucleoli. There are also intervening fibrous bands with an infiltrate of lymphocytes and plasma cells.

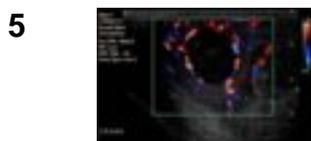


### Testicular Tumour

Image 4a (H&E, x2.5): Orchidectomy specimen showing a teratoma with areas of cyst formation and haemorrhage.



Image 4b (H&E, x2.5): Histological section of a teratoma (non-seminomatous germ cell tumour) showing hyaline cartilage and islands of columnar epithelium.



### Scrotal Abscess

Image 5 (Ultrasound): A central mass lesion is located superficially and in the midline towards the inferior pole of the scrotum. It has a low echogenic rim but contains echogenic material with no discernible flow within the lesion. There is inflammation of the surrounding tissues.

## Teaching Points

- Ultrasound is the preferred imaging modality to evaluate a scrotal mass [1-3](#)
- Ultrasound can be used to differentiate between intra and extra testicular masses. It is also useful for differentiating solid from cystic masses [4](#)
- A painless solid testicular mass is pathognomonic for testicular tumour, [1](#) though a proportion present with pain
  - 95% of testicular malignancies are germ cell tumours [5](#)
  - In older men over 60, lymphoma is the most common testicular malignancy [6](#)
- A mass in the body of the testicle is likely malignant until proven otherwise and is an indication for urgent urology referral

## Ultrasound

- Ultrasound is the preferred imaging modality to evaluate a scrotal mass [1-3](#)
- Indications [7](#)
  - To confirm a clinical diagnosis of tumour and to assess contralateral testis
  - To assess clinically solid scrotal masses
  - To assess an impalpable testis within a hydrocoele
  - To confirm a borderline clinical diagnosis of varicocele in appropriate patients
- Can differentiate between testicular and extra-testicular masses with accuracy approaching 100%. [8](#) The vast majority of extra-testicular masses are benign [9](#)
- Can differentiate fluid filled lesions (eg hydrocoele, spermatocele, haematocoele etc.) from solid

- intra-testicular tumours [4](#)
- Sensitivity and specificity for differentiating between benign and malignant testicular masses approaches 100% [10-12](#)
- A mass in the body of the testis is likely malignant until proven otherwise and warrants urgent urology referral
- Some benign conditions can mimic malignancy like focal infarction, haematoma and infection that can also appear as hypoechoic mass like areas with variable internal blood flow, [4](#) however malignancy cannot be reliably excluded with ultrasound only so specialist referral for further investigation is still indicated
- In select situations when the diagnosis is in doubt, percutaneous biopsy may prevent unnecessary orchidectomy. [13](#) MRI is also performed as an adjunct to ultrasound in some centres [9](#)

## Staging of Testicular Cancer

- The staging of testicular cancer requires histological staging as well as tumour markers and assessment for distant metastases [1](#)
- Common sites of extra-testicular disease are the abdominal lymph nodes, lung, liver and bone. Abdominal retroperitoneal lymph nodes are considered regional lymph nodes [4](#)
- CT of the abdomen and pelvis is recommended to assess for metastases to regional lymph nodes [1-3](#)
- In older studies, the accuracy of CT for detecting metastatic retroperitoneal lymph nodes is 73-97%, with sensitivity 65-96% and specificity 81-100% [14-20](#)
- CT chest is recommended to assess for pulmonary metastasis [2](#)
- MRI has also been validated to assess for regional nodal metastases, [21,22](#) but is generally reserved for select cases where contraindication to iodinated contrast prohibits adequate assessment, or where radiation exposure is a particular concern

## Varicocele Associated with Cancer

- Rarely varicocele may be associated with a renal or retroperitoneal tumour compressing the venous drainage of the testis
- 1.8% of varicoceles are associated with cancer, with no difference in risk between unilateral varicoceles of either laterality or bilateral varicoceles [23](#)
- Varicocele is the presenting complaint for 2.3% of renal cell carcinomas [24](#)
- Varicocele is often a late sign of malignancy, so history and examination should be performed to identify other signs and symptoms of malignancy [25](#)
- Some authors suggest routine ultrasound imaging of the ipsilateral retroperitoneal area and abdomen upon demonstration of a new varicocele, or evaluation with CT, [25,26](#) but there are no trials demonstrating benefit from either of these practices. The benefit of CT screening must be balanced with risk of malignancy associated with radiation exposure [23](#)

## References

References are graded from Level I to V according to the Oxford Centre for Evidence-Based Medicine, Levels of Evidence. [Download the document](#)

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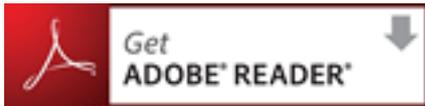
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