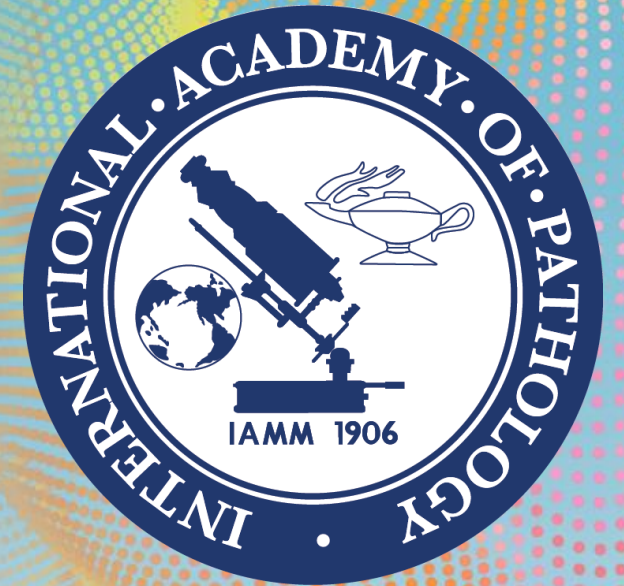


# A RARE TUMOUR IN AN EVEN RARER SITE

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 The 48th Annual Scientific Meeting *of the*

Australasian Division of the  
International Academy of Pathology

# Disclosure of Relevant Financial Relationships

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No relevant financial relationships

# CLINICAL DETAILS

- 43 Year old male
- Clinical history of a colorectal carcinoma in 2018
- Treated with chemoradiotherapy
- Presents with a lump in his penis increasing in size over 2-3 months

# MRI IMAGING



## AXIAL PLANE

- 9.2cm lesion
- 5cm from base of the penis
- Expanding the penis and infiltrating the corpus cavernosa and spongiosum
- The penile urethra is attenuated by the mass

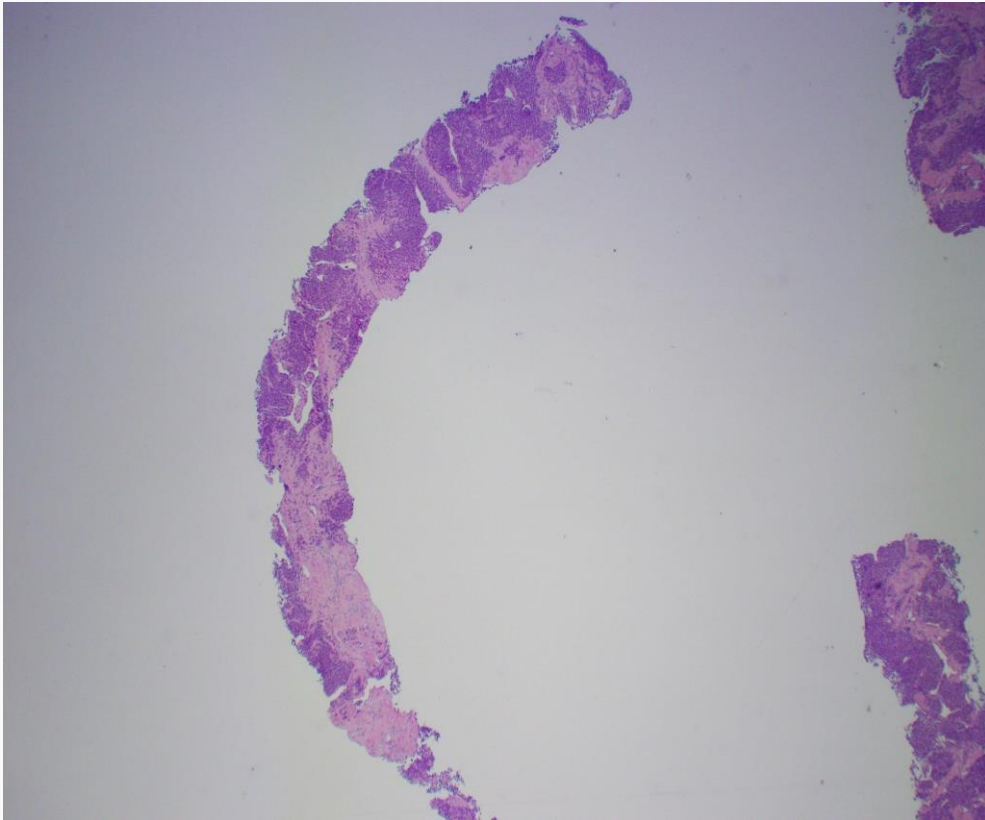
# MRI IMAGING



## CORONAL PLANE

- Dorsal aspect bulging
- Tunica poorly defined
- Possible extension beyond the tunica.

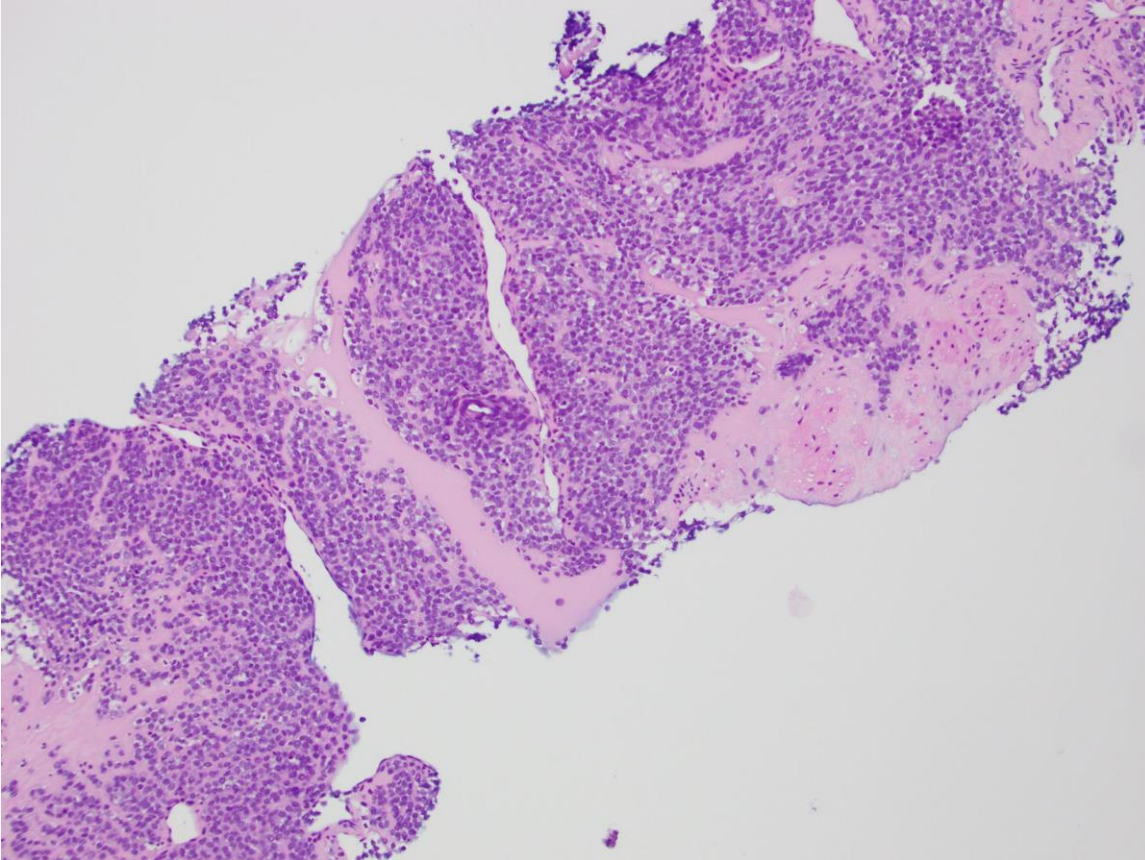
# PENILE CORE BIOPSY HISTOLOGY



## LOW POWER

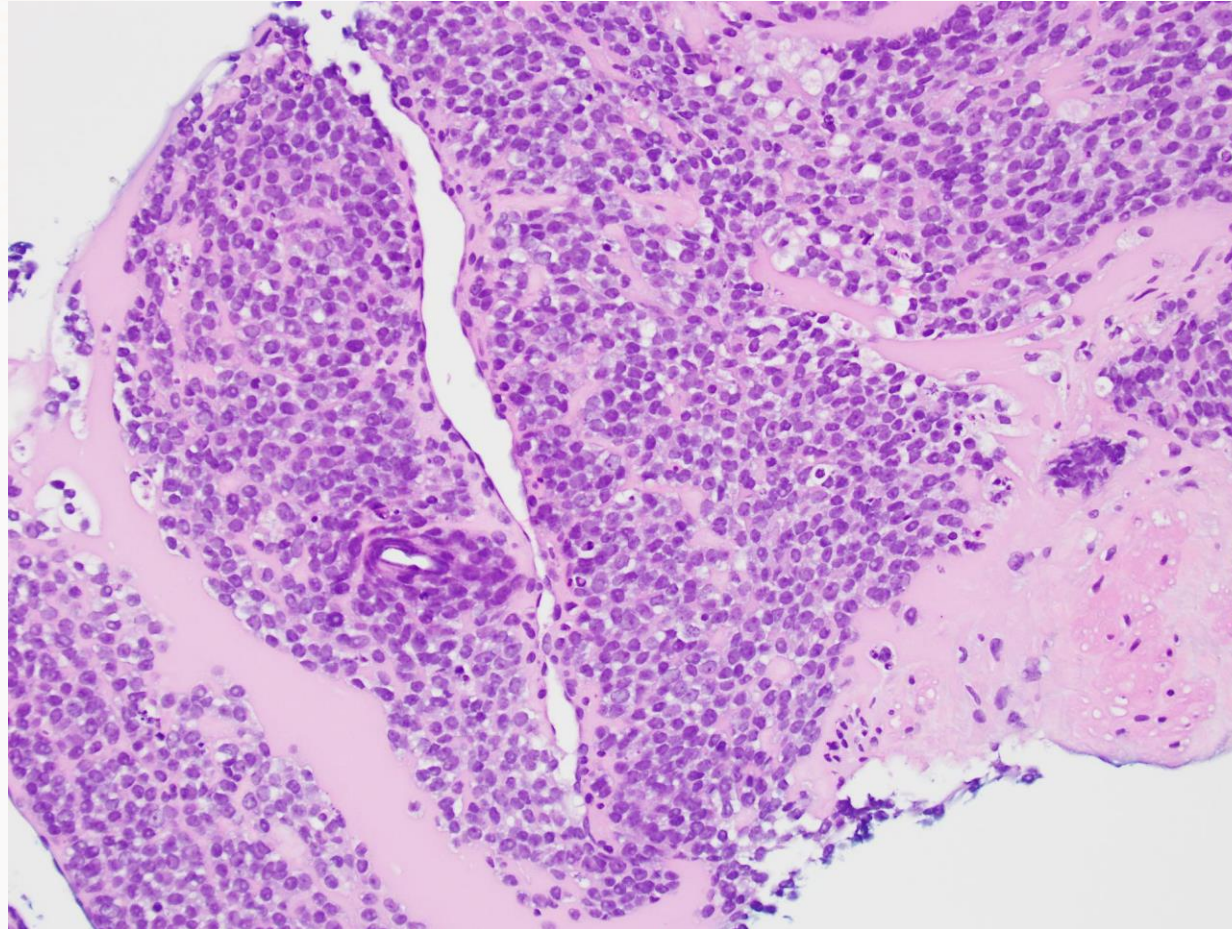
- Tumour infiltrating vascular erectile tissue
- Sheets of malignant cells no obvious necrosis

# HISTOLOGY

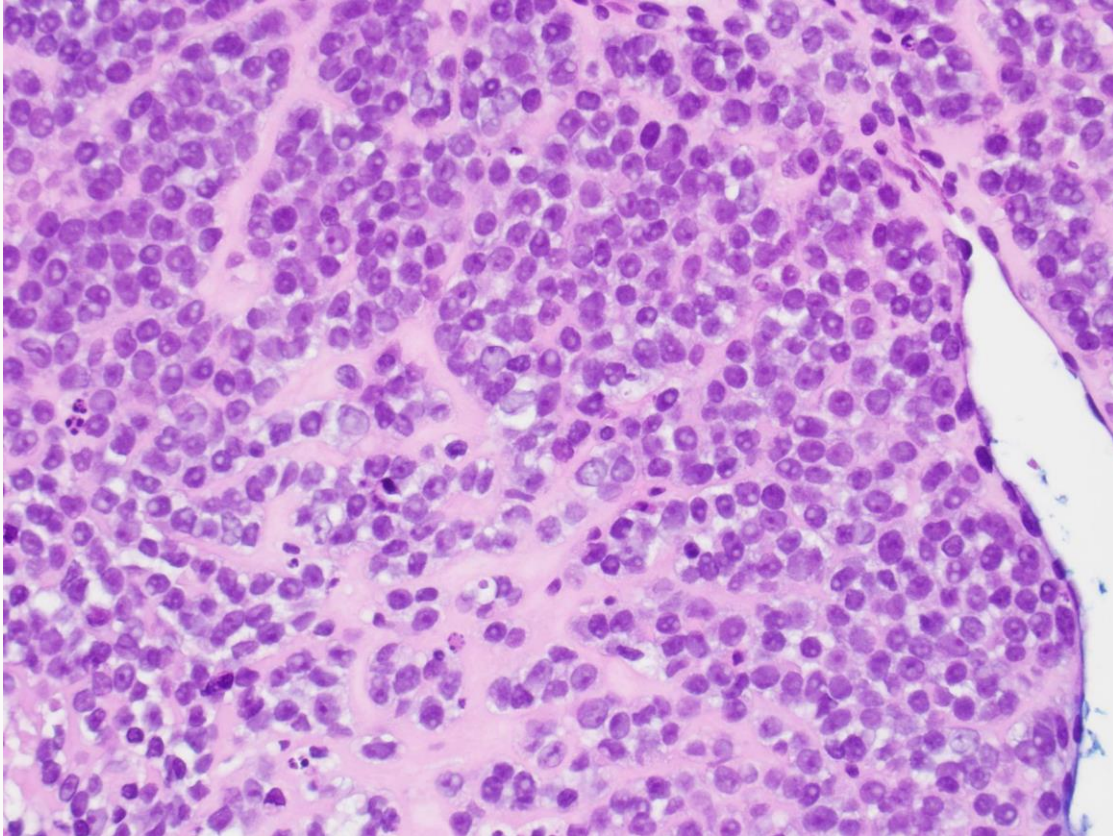


- Population of small round cells
- Sheets and large groups
- Minimal stroma

# HISTOLOGY



# HISTOLOGY



- Rounded mildly variable nuclei
- Fine chromatin
- Small nuclei
- Scattered apoptotic debris
- Mitoses are infrequent

# PRIMARY SITE OF ORIGIN OF REPORTED CASES OF METASTASIS TO THE PENIS (2)

## GENITOURINARY

- PROSTATE
- BLADDER
- KIDNEY
- TESTIS

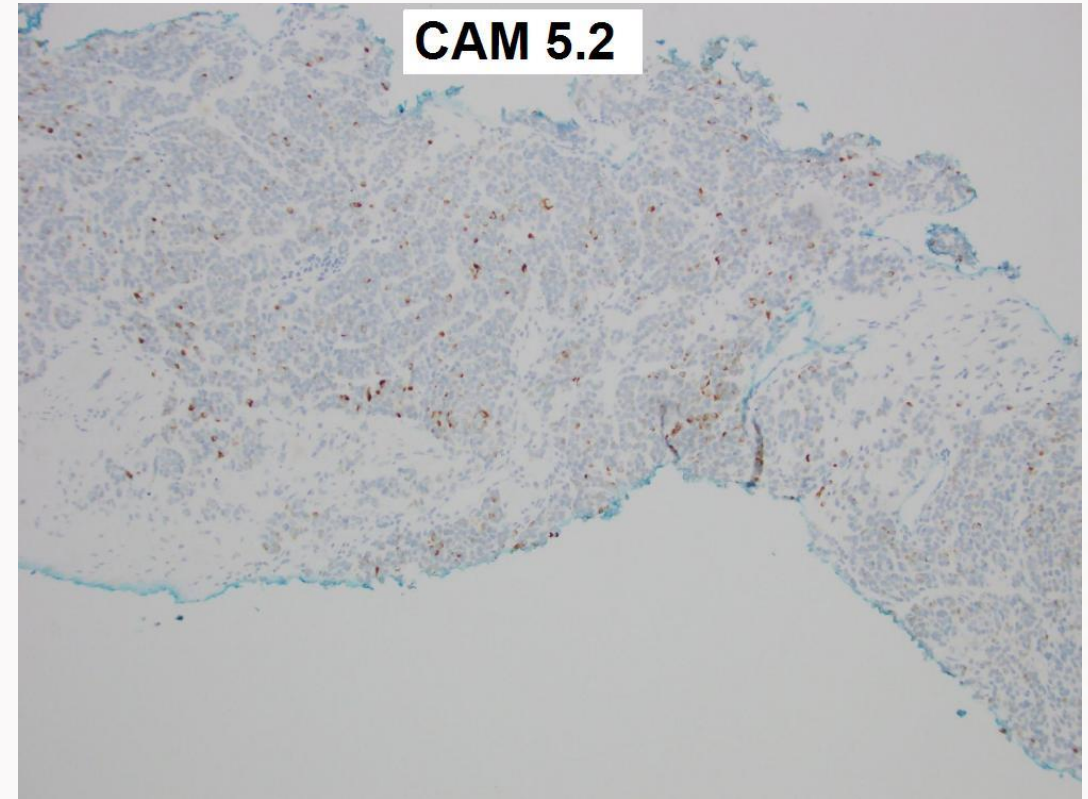
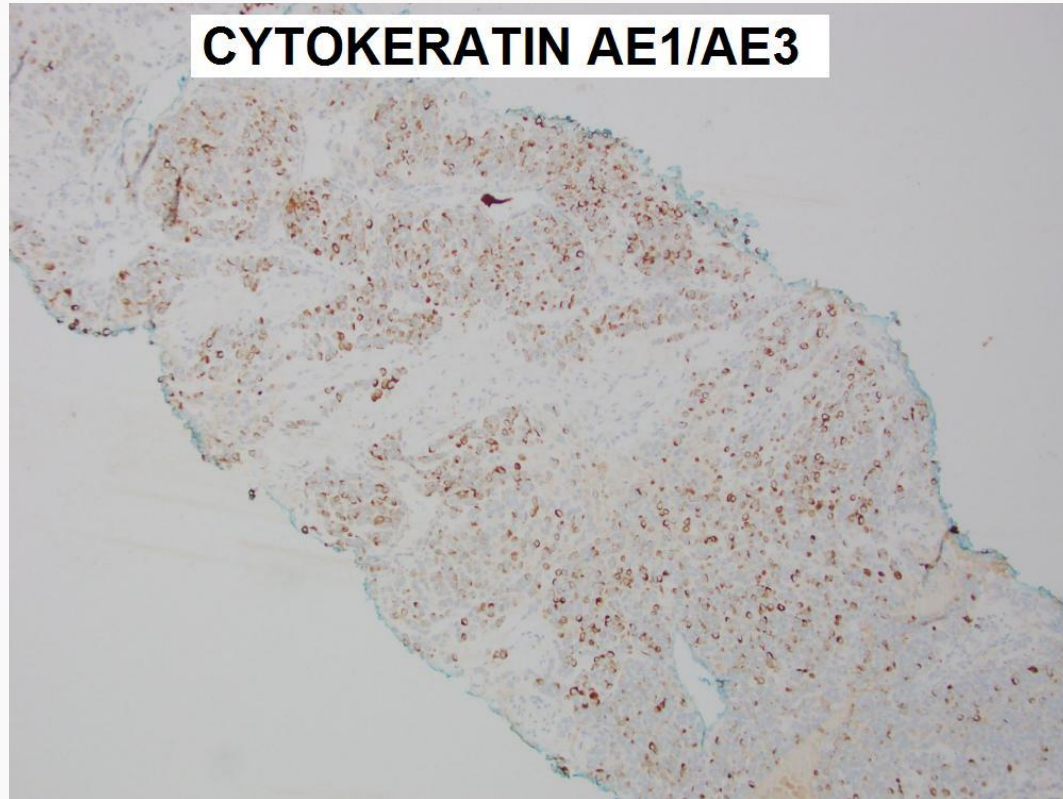
## GASTROINTESTINAL

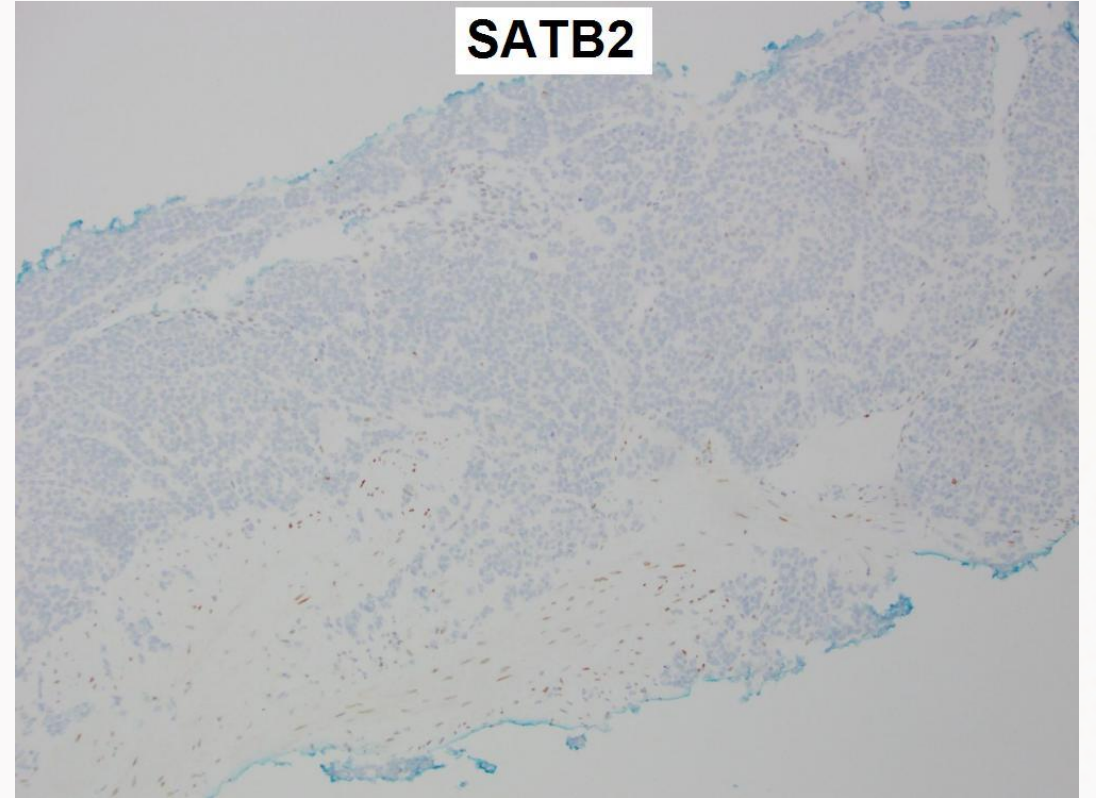
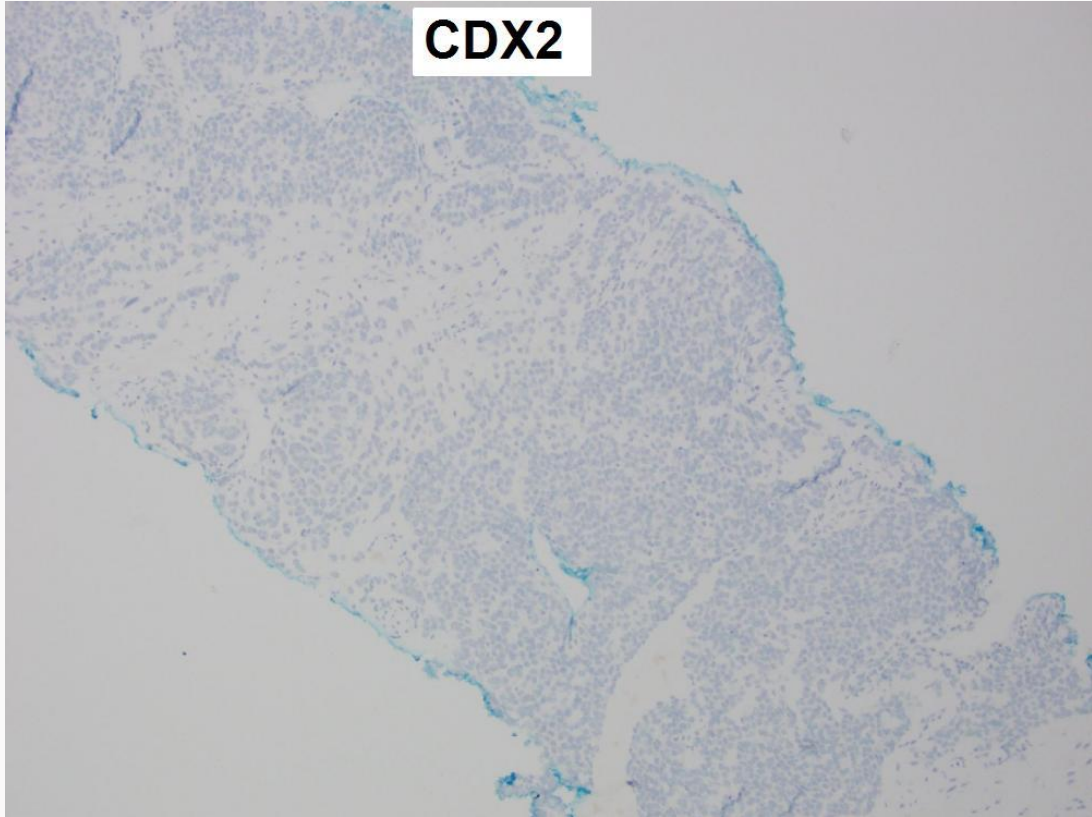
- COLON AND RECTUM
- HEPATOBILIARY
- PANCREAS
- STOMACH

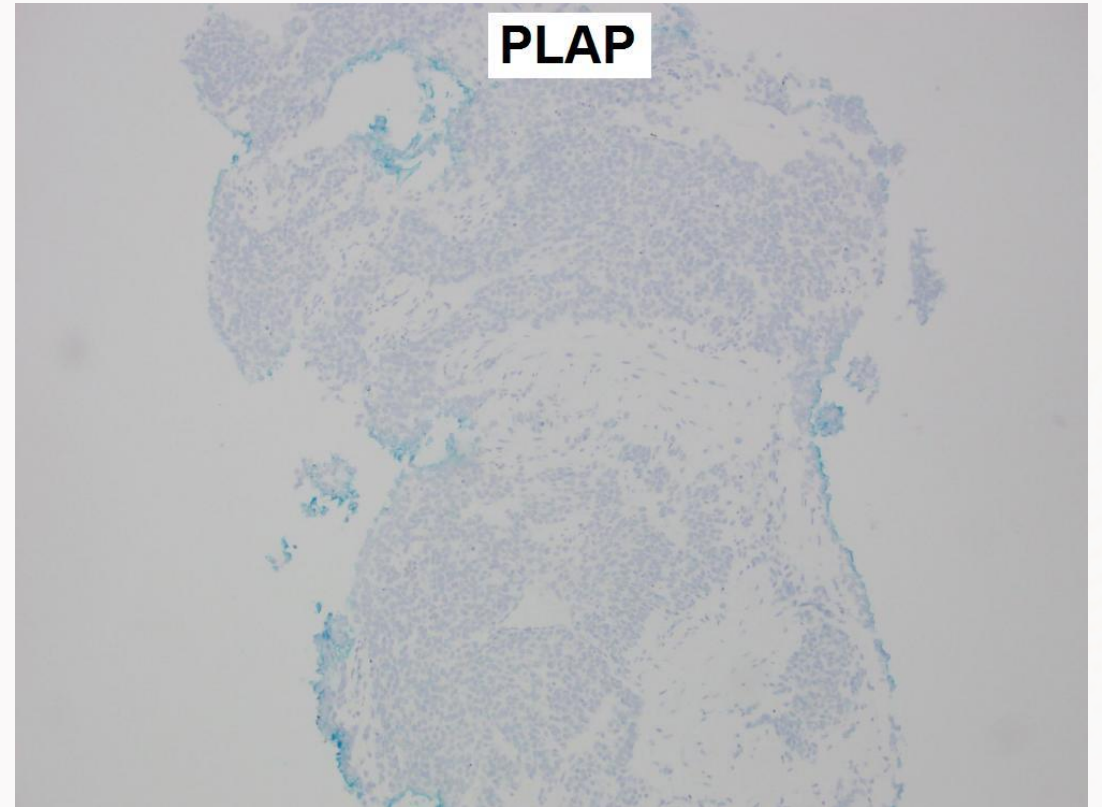
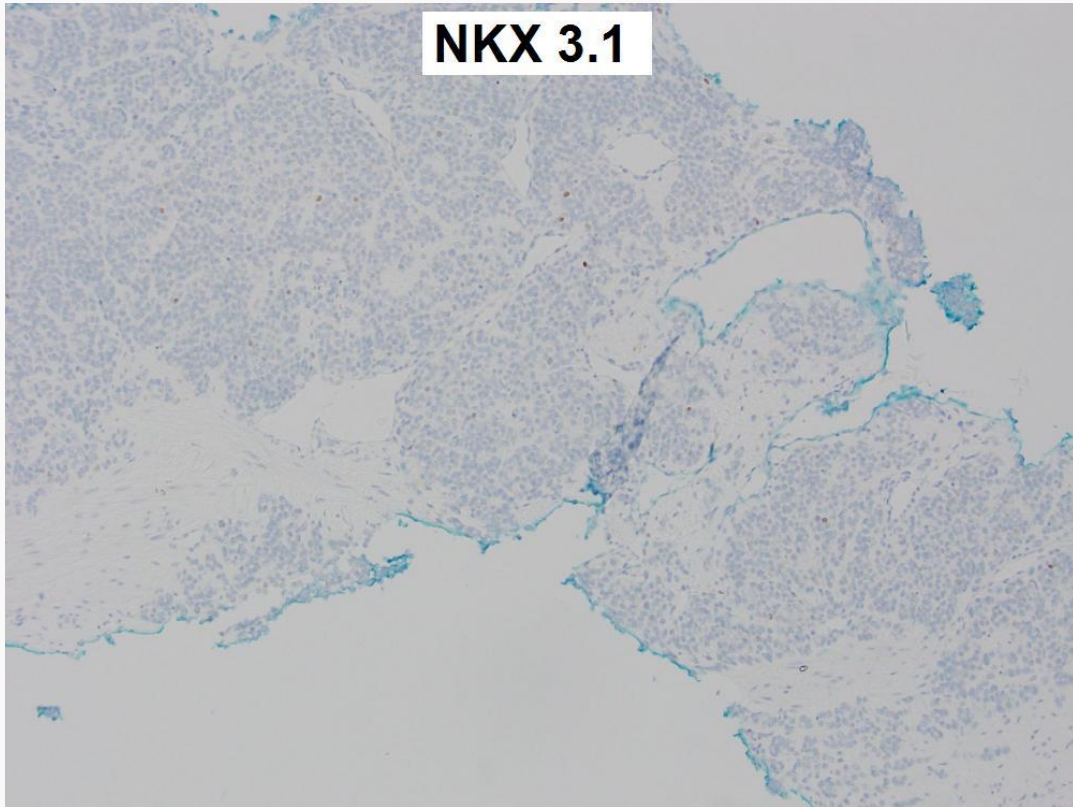
## OTHER

- LUNG
- BONE
- SOFT TISSUE
- MELANOMA

# IMMUNOHISTOCHEMISTRY







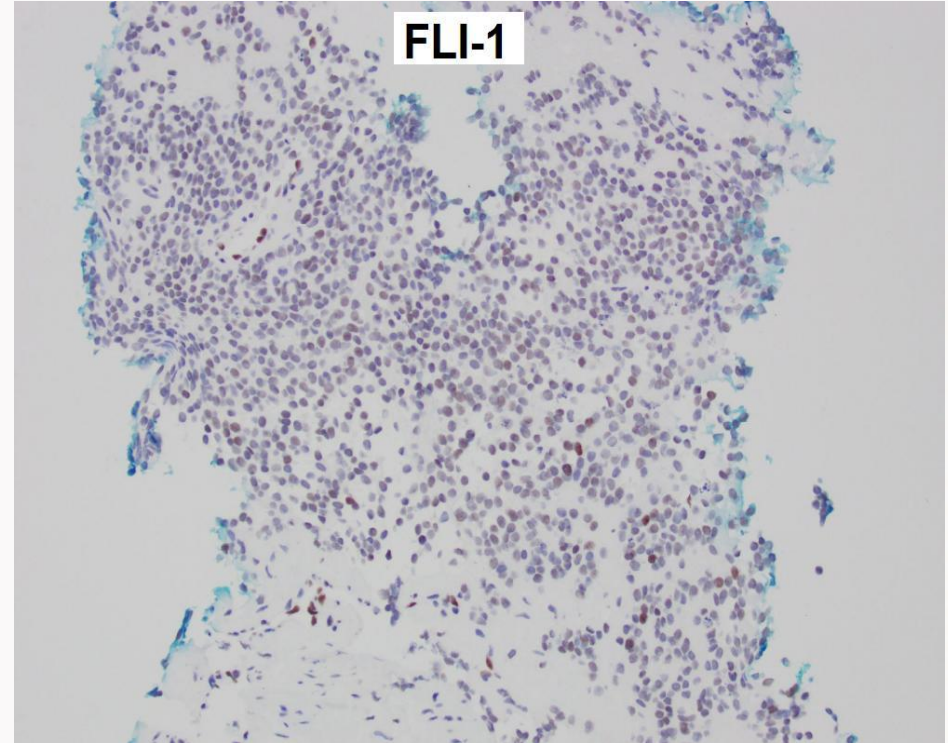
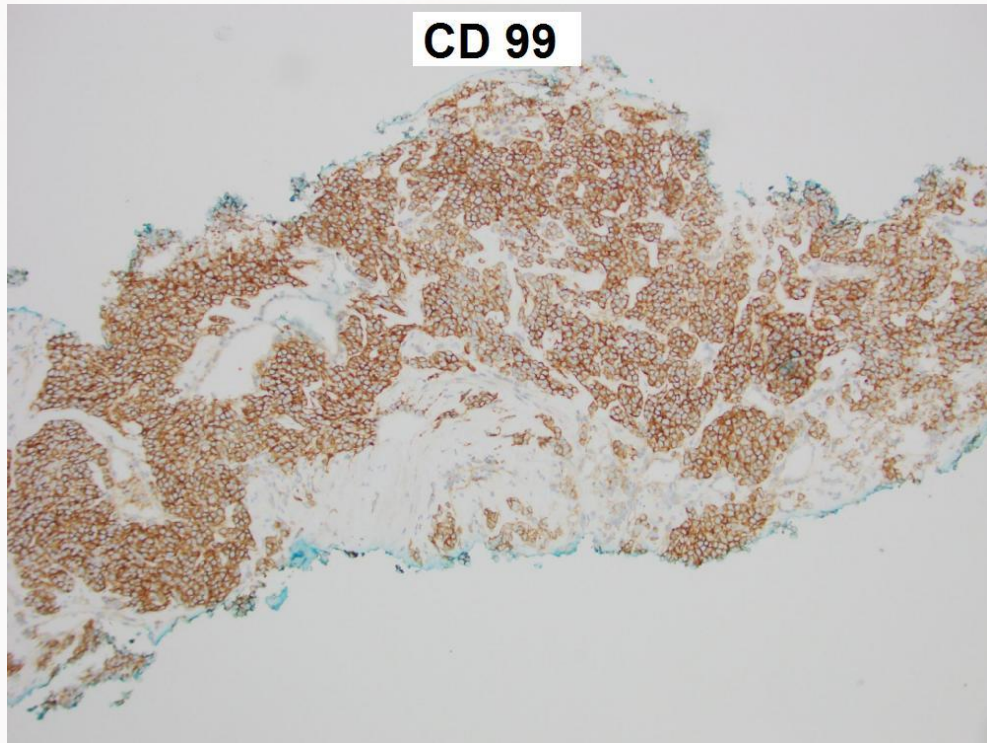
# ADDITIONAL IMMUNOHISTOCHEMISTRY

## Focal Positivity

- Synaptophysin, CD56, CD117

## Negative

- CK7, CK20, TTF-1, S100, SOX10, DESMIN, WT-1, CD34, ERG and CD45



# DIAGNOSTIC GENOMICS

FISH analysis showed an abnormal signal pattern indicating disruption of EWSR1 at 22q12.2

and EWSR1-FLI1 fusion associated with t(11;22)(q24.3;q12.2) in 43% of nuclei.

There was no disruption of FUS at 16p11,  
nor disruption of SS18 at 18q11.

# FISH RESULT

EWSR1 disruption DETECTED

EWSR1-FLI1 fusion DETECTED

FUS disruption NOT DETECTED

SS18 disruption NOT DETECTED

Results: Karyotype:

nuc ish(FLI1,EWSR1)x2(5'EWSR1 sep 3'EWSR1x1)(FLI1 con  
5'EWSR1x1)[86/200],(FUSx2)[200],(SS18x2)[200]

# DIAGNOSIS

## EWING SARCOMA OF THE PENIS

- PRIMARY (staging FDG PET showed uptake in the penis with no alternative primary site or metastases)
- Possible radiotherapy related given his clinical history of previous radiotherapy to the pelvis.

# EWINGS SARCOMA

- Relatively uncommon (6-8% of primary bone tumours)
- Pathogenesis driven by the pathognomonic EWSR1-ETS gene fusions (EWSR1-FLI1 most common 85%)
- Classically demonstrates characteristic diffuse CD99 membranous positivity
- 10-20% of Ewings cases present as extra skeletal

# MESENCHYMAL TUMOURS OF THE PENIS

Penile neoplasms are infrequent and constitute approximately 0.5% percent of malignancies (based on US and European data)

Mesenchymal malignancies are even rarer and comprise less than 5% of all penile tumours.

There are few case reports and limited case series gathered over a protracted period of time (1,2).

The 4<sup>th</sup> Edition of WHO based on the Armed forces Institute of Pathology data between 1970 and 1999 identified 116 soft tissue tumours of the penis (3).

# United States Armed forces Institute of Pathology data for 116 cases (1970 and 1999)

- Kaposi sarcoma – 30
- Leiomyosarcoma – 14
- Myointimoma -10
- Epithelioid haemangioma – 9
- Granular cell tumour – 7
- Schwannoma -6
- Neurofibroma - 6
- Unclassified sarcoma - 5

# Istituto Nazionale Tumori di Italiano

Review of all penile neoplasms reported over 30 years

1150 penile neoplasms

- 18 primary soft tissue neoplasms
- 4 Benign / 14 Malignant
- Kaposi sarcoma again the most prevalent (n=4)
- Dedifferentiated liposarcoma (n=1)

# EXTRASKELETAL EWINGS SARCOMA [EES]

Extraskeletal occurrence of Ewing sarcoma is rare with an overall incidence of 0.4 per million

It can occur in any location, reviews with a focus on EES tumours reported in female and male genital organs has identified cases involving the vulva, vagina, uterus, ovaries and testicles.

The occurrence of Ewings Sarcoma in the penis is infrequent.

# EWING SARCOMA OF THE PENIS

Literature review. PUBMED (1970-April 2024)

Identified seven reported cases of primary Ewing Sarcoma of the penis.

- Two cases in China (4,5)
- One in India (6)
- One in the United States of America (USA) (7)
- One in Turkey (8)
- One in the Czech Republic (9)
- One in the United Kingdom (10)

# CONCLUSION

Extraskkeletal Ewings Sarcoma of the penis, a rare neoplasm occurring in an extremely rare site.

These tumours require multimodal management including psychological support for any impending radical surgery

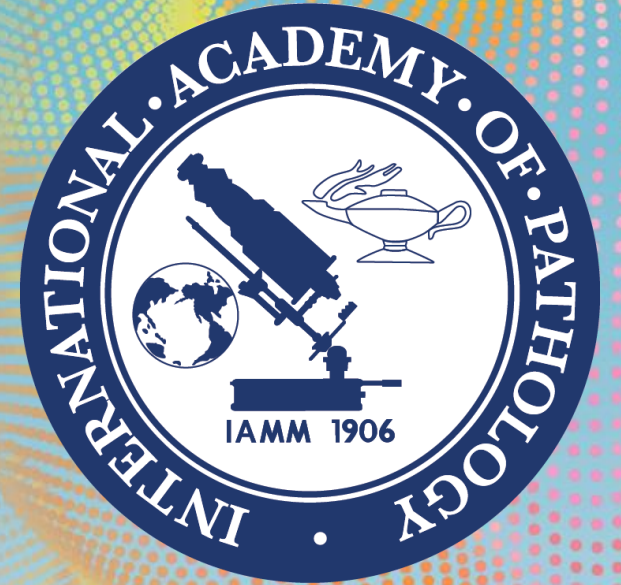
The patient was referred by the treating urologist to the centralised State Sarcoma Service of Western Australia for multidisciplinary management of treatment and post treatment follow-up.

# PRIMARY EWINGS SARCOMA OF THE PENIS

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A RARE TUMOUR IN AN EVEN RARER  
PRIMARY SITE

Dr Clifton Woods



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