Fertility Preservation in 2020: Cases for Discussion
CASE 1
12 year old male with left testicular torsion

- Presented to local ED, to OR within 4 hours of onset of pain
  - Dusky; orchiopexy performed

- Pre/intraoperatively: nonpalpable RIGHT testicle
  - Surgeon (adult urologist) recommended MRI
3 months after orchiopexy...

- Referred to Pediatric Urology
  - Birth history: bilateral descended testes
  - According to Epic: testes down at well-child visits for past 5 years
Physical Exam

• Tanner 4

• Left testis slightly atrophic, normal consistency

• Subtle scrotal asymmetry. Right hemiscrotum slightly less rugated, some tissue palpable beyond external ring
Review of post-orchiopexy ultrasound
## Labs

### Diagnostics: April 2019 (elsewhere)

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<tbody>
<tr>
<td>Testosterone Free</td>
<td>1.29</td>
<td></td>
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<tr>
<td>Testosterone Total</td>
<td>76</td>
<td></td>
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<tr>
<td>FSH</td>
<td></td>
<td>98.3 (H)</td>
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<tr>
<td>LH</td>
<td></td>
<td></td>
<td>46.6 (H)</td>
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What would you offer?

• Attempt semen cryopreservation?
  • Zero sperm seen

• Testicular tissue cryopreservation?
• Wants a testicular prosthesis

• To OR for:
  • Right groin exploration, excision of remnant
  • Placement of prosthesis
  • Left testicular biopsy
    • Back table TESE if sperm seen vs
    • Cryopreservation of tissue
Intraoperative findings

• Right atrophic testis within inguinal canal, 1.1 x 0.7 x 1.0cm → removed
  • Completely dissociated epididymal tail, which was extending into scrotum

• Left testis slightly atrophic
  • Testicular biopsy: normal-appearing testicular parenchyma at periphery, central avascular firm tissue
Pathology:

- Testis, right: Immature seminiferous tubules, showing Sertoli cells only pattern. No active spermatogenesis.

- Testis, left, biopsy: Immature seminiferous tubules, showing Sertoli cells only pattern. No active spermatogenesis.
Now what?

• Testosterone supplementation

• Should his tissue be kept in storage, or is it a waste of money?
CASE 2
13 year old trans female

• Transitioned
  • socially at age 3 years
  • In school around 2\textsuperscript{nd} grade
  • Interested in puberty blockade
Physical exam

- General: no obvious voice change
- Genitalia: Tanner III, testicular size 4.5cm bilaterally. Symmetric scrotal rugation. Stretched penile length 7.5cm
• LH 4.8, FSH 2.5 (WNL)
• Free testosterone 3.40 ng/dL
• Total testosterone 200ng/dL
• Mother has done research, requests fertility preservation
  • Patient initially not interested, but wants to hear options

• Scant data on spontaneous return of sperm production upon d/c’ing puberty blocker
  • Per patient: would also be very difficult
• What would you offer?

• Any issues with insurance coverage?
• Seminiferous tubules and mature spermatids are identified.
  • 12 vials of personal use testicular tissue was stored.
  • In addition to this, 5 mature sperm were seen, 2 of them motile and 3 non motile.
CASE 3

• 17 year old male with metastatic germ cell tumor, mediastinal primary
• Going to OR next day for port placement

• Fertility preservation discussion:
  • Can’t he just give a semen sample??

  • Would you still preserve tissue if viable sperm are found on TESE?
Open testicular biopsy, TESE

- 10 vials for patient use and 5 vials for research.
- Per patient (and parent) request we also have 8 vials of TESE sperm frozen for patient use.
- The 10 vials are being frozen per IRB requirements and the 8 vials were frozen per our standard REI freezing protocol.
- Sperm were found, both non-motile (5-10 per HPF) and twitching (3 in 5 HPF’s).