The ‘Whoops’ Procedure

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Objectives

- What is a ‘whoops’ procedure
- How often does it occur?
- Why does it happen?
- What are the consequences of the ‘whoops’
  - is it truly a ‘whoops’ or more of an ‘oh %$#@’
- How can we avoid it?
- What should we do if it happens?
'WHOOPS'... 'OOPS'...

- When a mass that is assumed to be benign is resected, and the final pathologic diagnosis comes back, unexpectedly, as sarcoma
HOW OFTEN DOES IT HAPPEN?

- **Bone sarcoma**
  - 5-31% of referrals are from ‘whoops’ procedures

- **Soft tissue sarcoma**
  - 18-66% of referrals are from ‘whoops’ procedures
WHY DOES IT HAPPEN?

- Sarcoma is RARE
- Benign lesions far more common

WHY DOES IT HAPPEN

- **We make assumptions**

- Most commonly presumed diagnoses in unplanned osseous sarcoma resections:
  - *osteomyelitis*
  - *giant cell tumor of bone*
  - *bone cyst*
  - *osteonecrosis*
  - *metastatic disease*

- Most commonly misdiagnosed soft tissue sarcomas are:
  - <5 cm
  - *painless*
  - *superficial to the fascia*
WHY DOES IT MATTER?

- *With a ‘whoops’ procedure, there are . . .*
  - Lower rates of limb salvage
  - Lower rates of local control
  - Shorter mean time to local recurrence and metastases
  - Increased wound complication rates
  - Increased amputation rates
  - Greater need for flap coverage
  - Worse functional scores
  - Litigation
WHY DOES IT MATTER?

HOW CAN WE PREVENT IT?

- **Biopsy Principles, Biopsy Principles, Biopsy Principles**
  - Longitudinal incision
  - In-line with planned reconstructive procedure

- **If you don’t know, ask!**
  - Meticulous hemostasis
  - No tissue planes, no neurovascular dissections
  - No reaming
  - Frozen Sections
HOW CAN WE PREVENT IT?

- **Imaging**
  - CT and MRI – Do not hesitate to get advanced imaging in your work-up!
  - MRI needs to be done *with and without contrast*

- **Refer it out**
  - Ortho is good at this . . . general surgery is not
QUESTIONS?
REFERENCES


REFERENCES


- Potter BK, Adams SC, Pitcher JD, Temple HT. Local recurrence of disease after unplanned excisions of high-grade soft tissue sarcomas. Clinical orthopaedics and related research. 2008 Dec 1;466(12):3093-100.
REFERENCES


