

Bone Cancer Research Trust

‘Strictly Research’ Grant Applications

07/05/2016

BCRT 10th Anniversary Conference

CHARITABLE INCORPORATED ORGANISATION (CIO) NUMBER - 1159590



Safe surgical margins for Ewing Sarcoma

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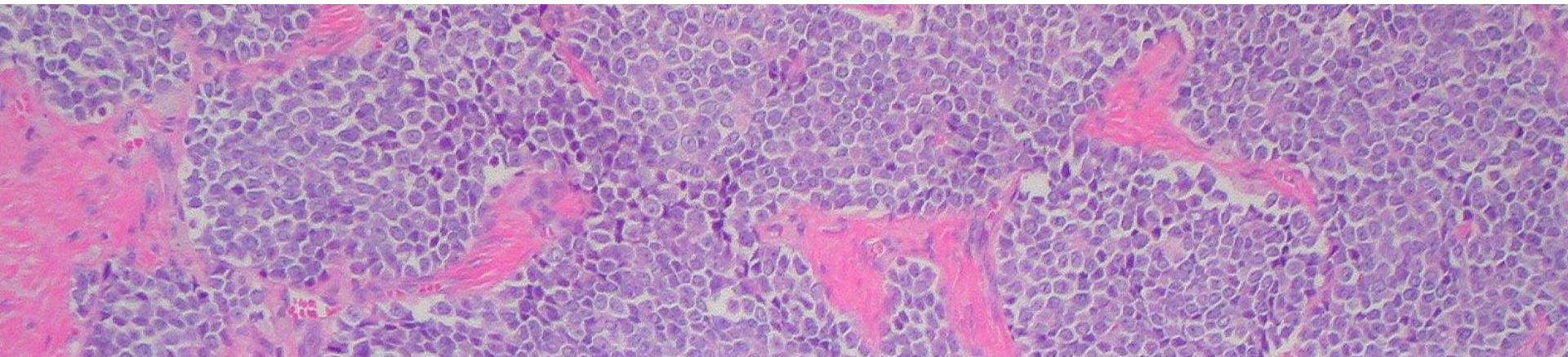
Oxford Sarcoma Service/NDORMS

Study question

If we were to plan our surgical resection for Ewing Sarcoma from the post-chemotherapy scan, would we still achieve a disease free margin?

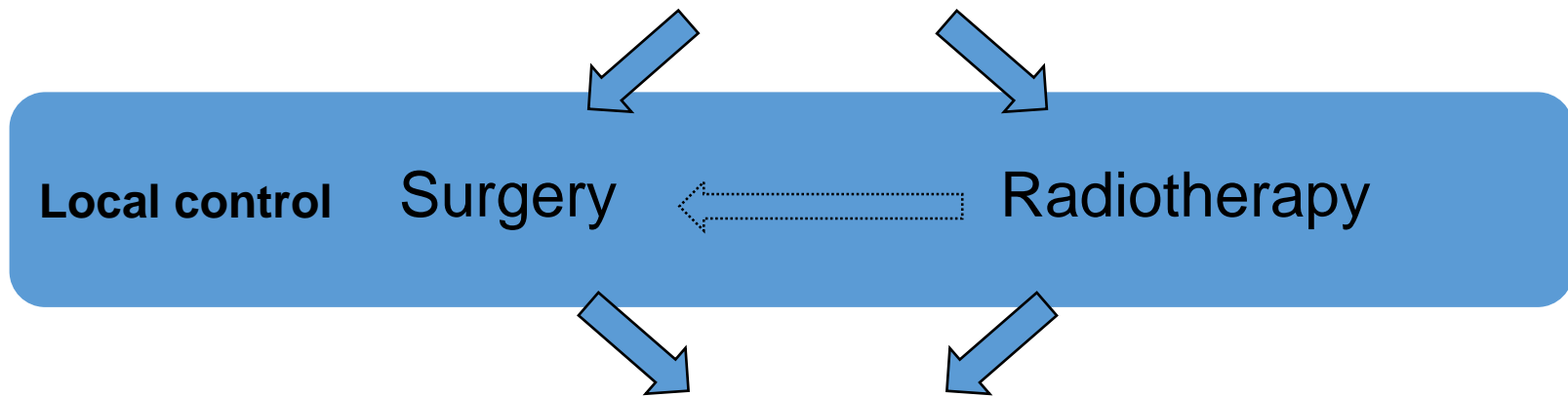
Background – Ewing Sarcoma

- 3rd most common primary bone cancer
- 1.5 per million
- Predominantly affects teenagers and young adults
- ~50% of cases affect the long bones of the arms and legs



Typical treatment pathway

Neo-adjuvant Chemotherapy



Adjuvant Chemotherapy

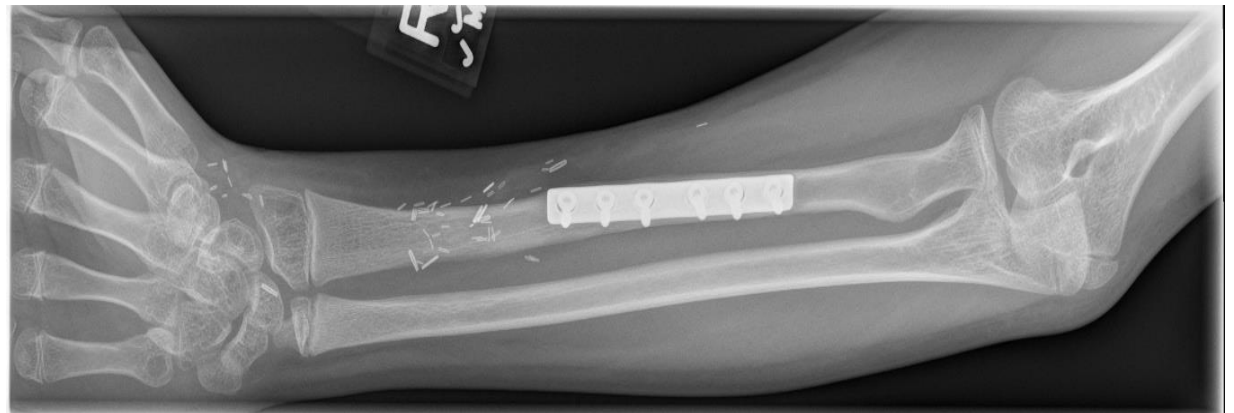
Surgery vs radiation

- No randomised studies of surgery vs radiation
- Current practice favours surgery for local control

What are our surgical goals?

- Curative resection as part of multimodal treatment
 - Clear margins
- Limb salvage surgery should not compromise survival
 - Must be as safe as amputation

Example reconstructions

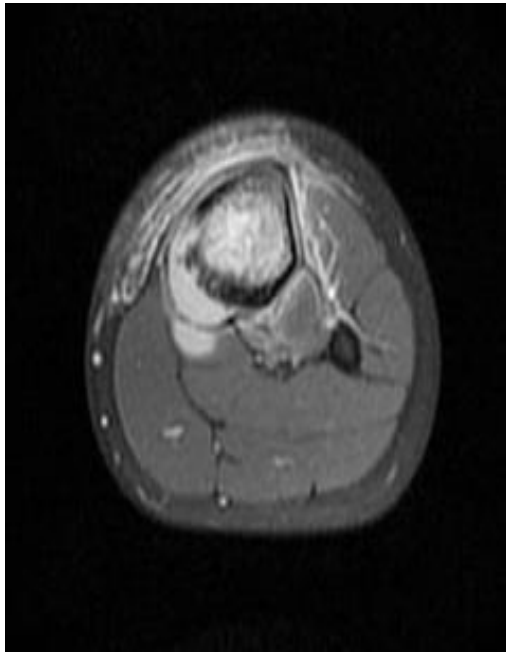


Clinical case

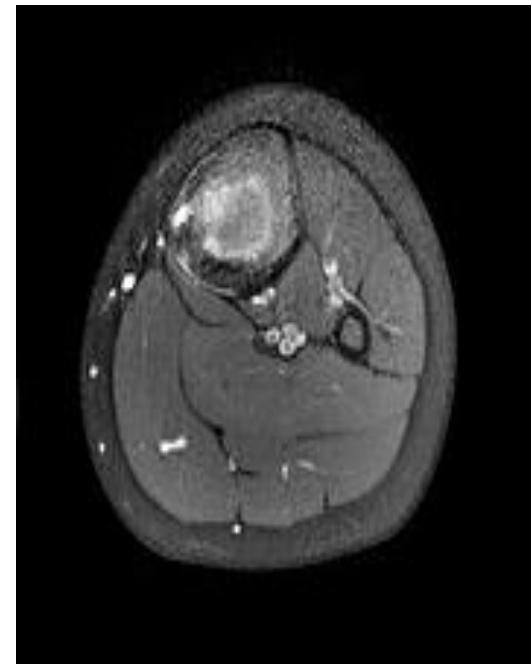


Ewing Sarcoma: Responsive soft tissue mass

Pre-chemotherapy

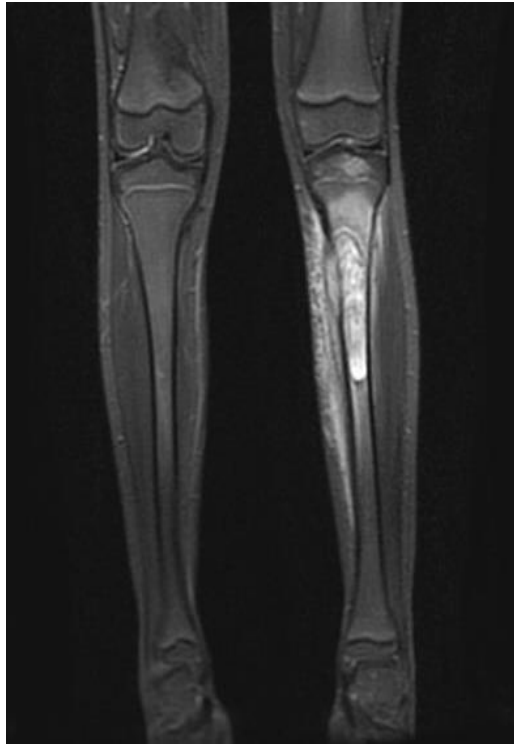


Post-chemotherapy



Ewing Sarcoma: Responsive soft tissue mass

Pre-chemotherapy



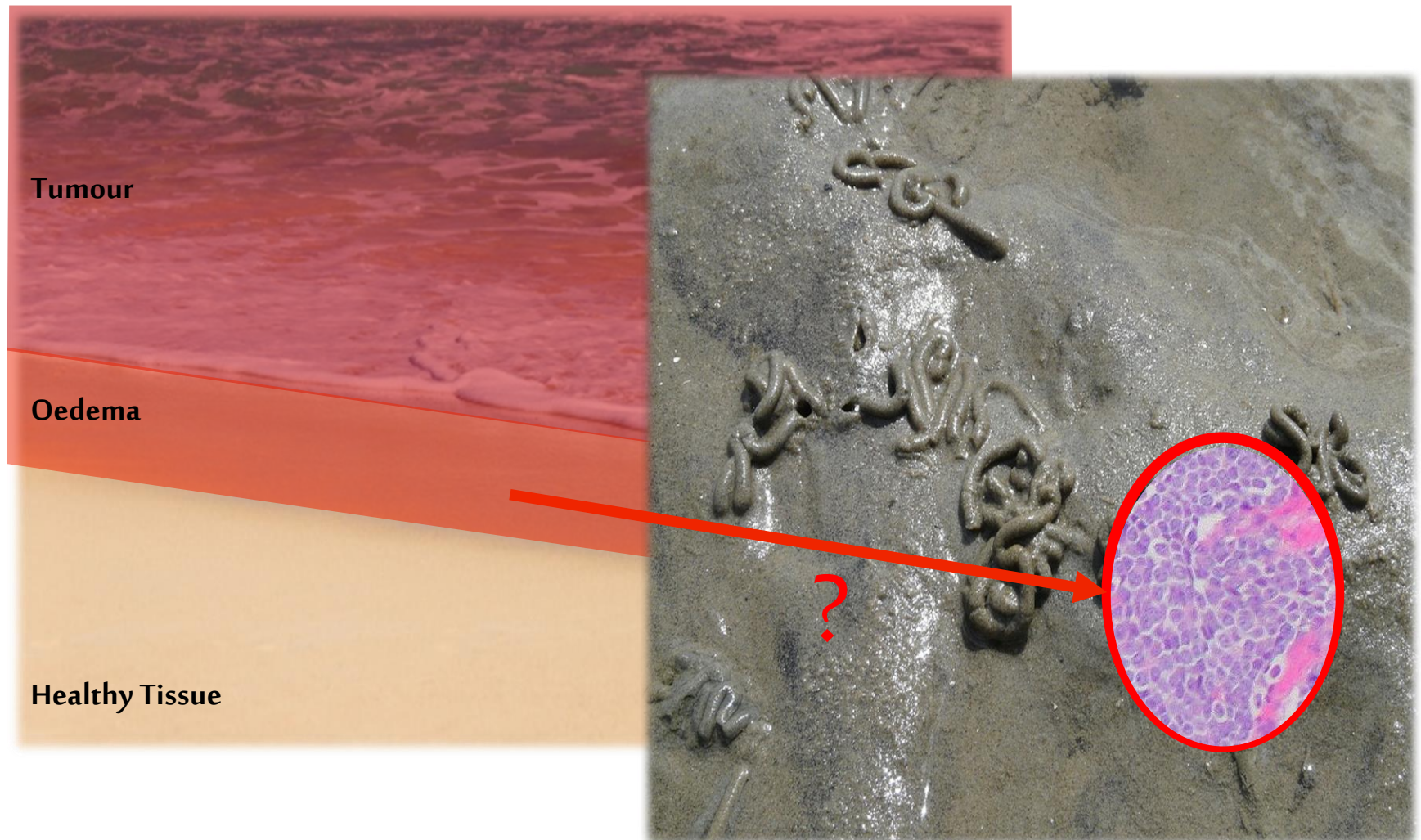
Post-chemotherapy



Is there surgical consensus?

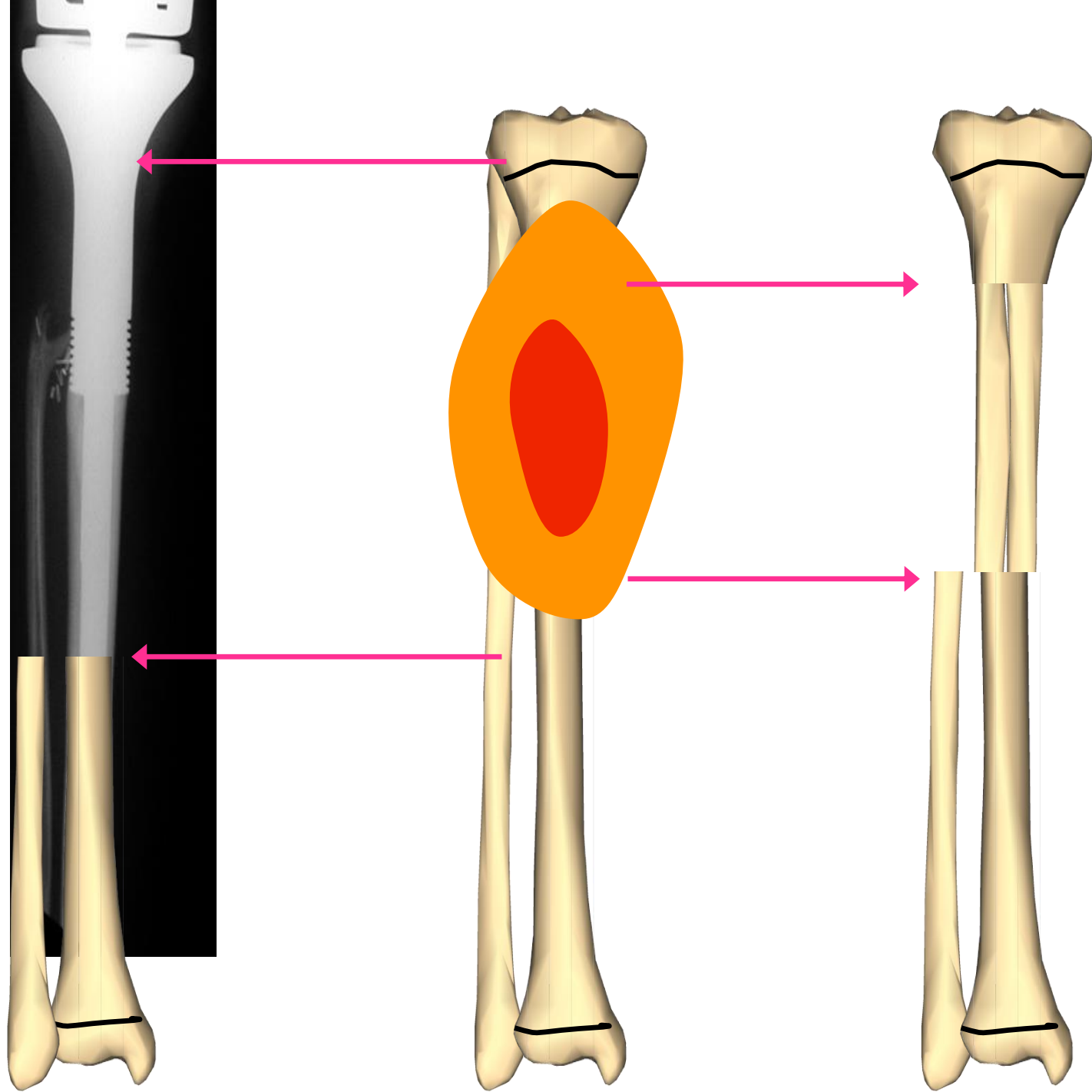
Marginal
VS
More Radical Approach

Tidemark



Current evidence

- No consensus on the required margin – global variation
- Typical approach 2cm on pre-chemotherapy MRI margin
- Survival not compromised if microscopically clear



Study Plan:

Part 1:

“Proof of Principle”

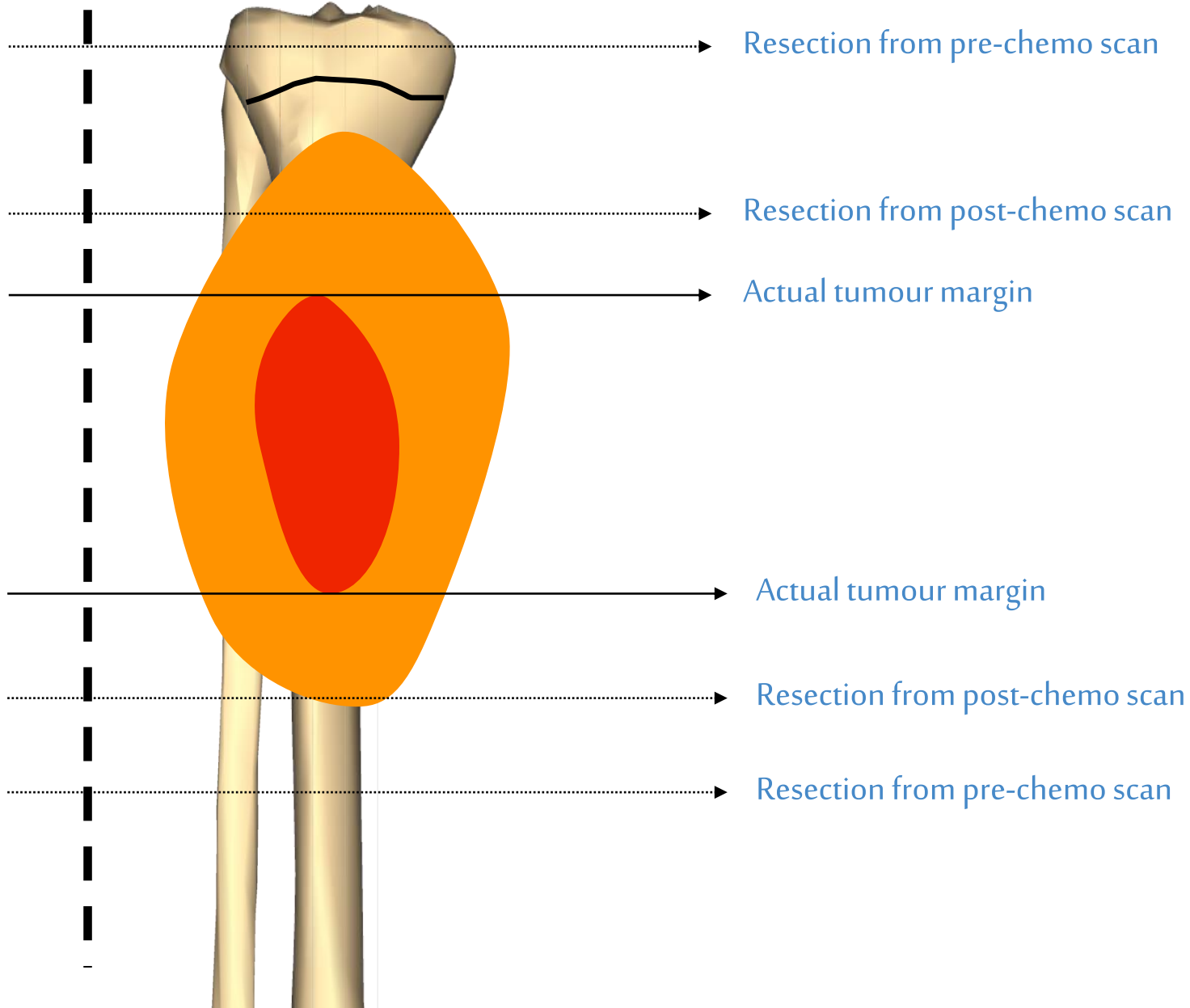
- Retrospective review
 - Quantitative assessment of pre and post chemo imaging
 - MRI + PET where available
 - Confirm parameters for prospective study

Study Plan

Part 2:

Prospective study

- Quantitative assessment of pre and post chemo imaging
 - MRI + PET where available
- Histopathological analysis of selected resection levels
 - Actual operative margin
 - Measured resection from post-chemotherapy scan
 - Expect 2cm margin on pre and post chemotherapy scan



Study Question

“If we were to plan our resection based on the post-chemotherapy scan, would we achieve a disease free margin?”

Outcome measures

- Is a 2cm margin based on a post-chemotherapy scan clear of tumour?
- What is the difference between the actual length of resected bone and the new theoretical resection?
- Would the reconstructive plan be changed by a more minimal resection?

What is the intended benefit?

Reduce resection
volume

↑ Limb sparing

↑ Joint sparing

↑ Growth sparing

↑ function

↓ reoperation

Which requires safety data from our study

Timeline

June 2016

- Ethics approval
- Collect and analyze retrospective study data

July 2016-July 2018

- Prospective study
- Aim to recruit 20 cases
- Collaboration

End 2018

- Completion of data analysis
- Dissemination of results

Dissemination of results

- BCRT
- British Orthopaedic Oncology Society
- BOA – Tumour section

- Submission for open access publication in 2019
 - The Bone and Joint Journal (or suitable alternative)

Key messages

- Surgery is only a small part of overall management
- Significant implications for long term function
- Aggressive resection may limit the reconstructive options
- More marginal techniques need to be assessed for safety

Meet The Team



Thank you

Any Questions?

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UNIVERSITY OF
OXFORD