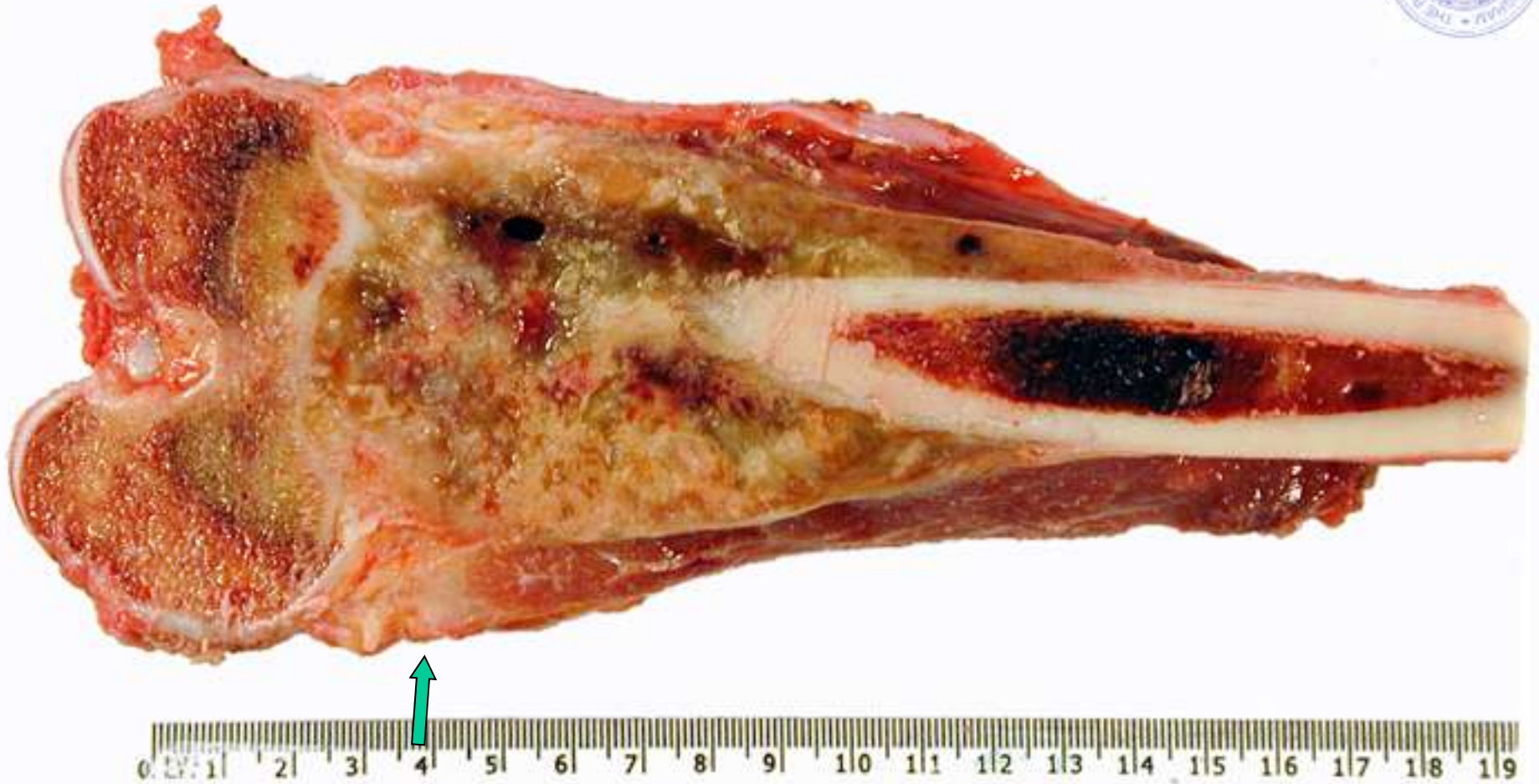


Osteosarcoma with poor response to chemotherapy and narrow margins

Simon Carter, Rob Grimer, Lee Jeys, Roger
Tillman, Seggy Abudu.
Royal Orthopaedic Hospital,
Birmingham.

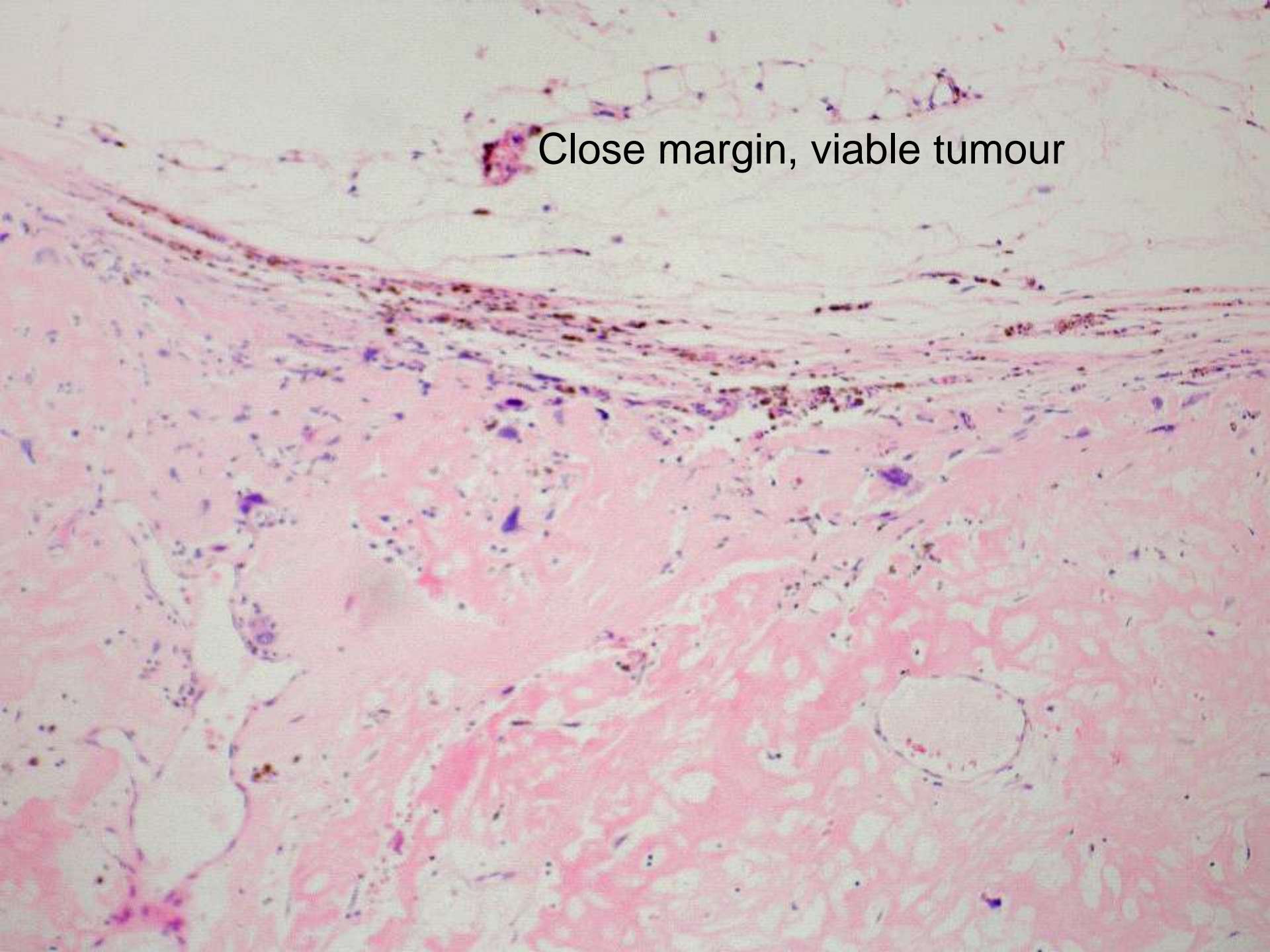




Close
Margin

Osteosarcoma arising in a 24 yr. old ♀
with bilateral retinoblastomas

Close margin, viable tumour



Relationship of chemotherapy-induced necrosis and surgical margins to local recurrence in osteosarcoma

- **No local recurrence in 59 radical resections.**
- **No local recurrence in 10 rotationplasties.**
- **8% local recurrence wide resection.**
- **10% local recurrence limb salvage surgery.**
- **3 prognostic indicators**
 - **chemo necrosis ($p < 0.0001$)**
 - **margins ($p = 0.0001$)**
 - **age**

Picci et al J Clin Oncol 1994

Grade of chemo induced necrosis as predictor of local and systemic control

- Good responders

5 yr DFS 67.9%

5 yr OS 78.4%

Poor responders

5 yr DFS 51.3%

5 yr OS 63.7%

Bacci et al Eur J Cancer 2005

Aim of Study

- To assess outcome with respect to margins and necrosis for patients treated with surgery and chemotherapy for osteosarcoma.
- Outcome measures – local recurrence
overall survival

Patient Population.

994 Osteosarcoma

134 exclusions – stage 3

previous surgery
path fracture

Study population – 182 Osteosarcoma

Limb

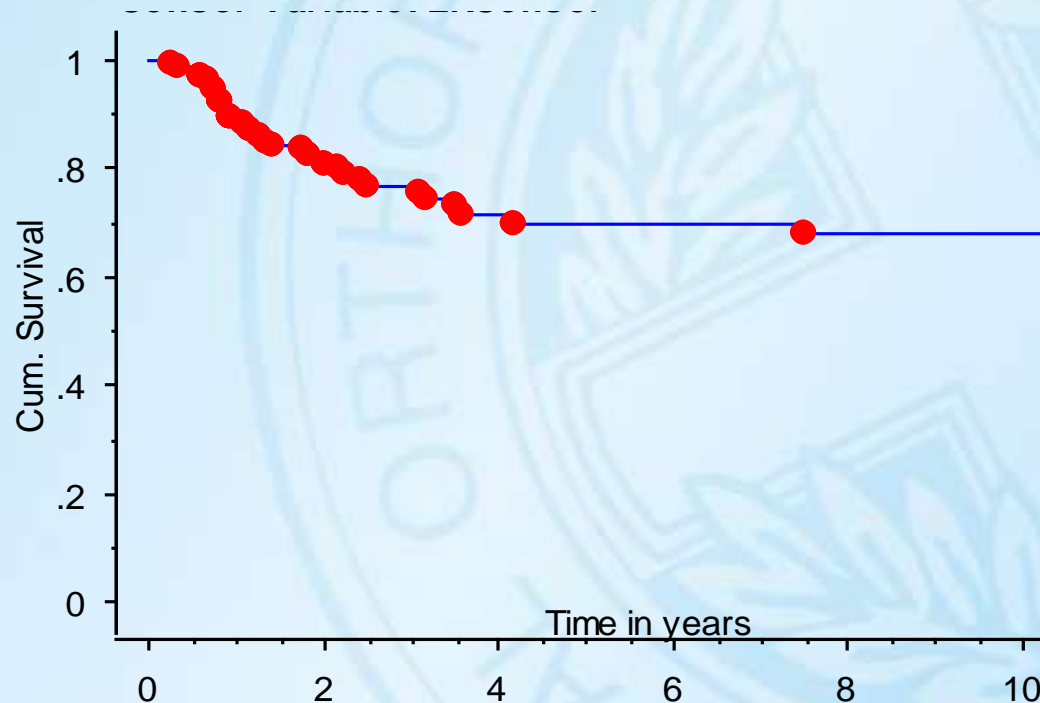
Poor chemo response

Marginal resection/amputation

Results

- 60 amputation (13%LR)
- limb salvage – 105 marginal margins(22% LR)
17 intralesional margins(41%LR)

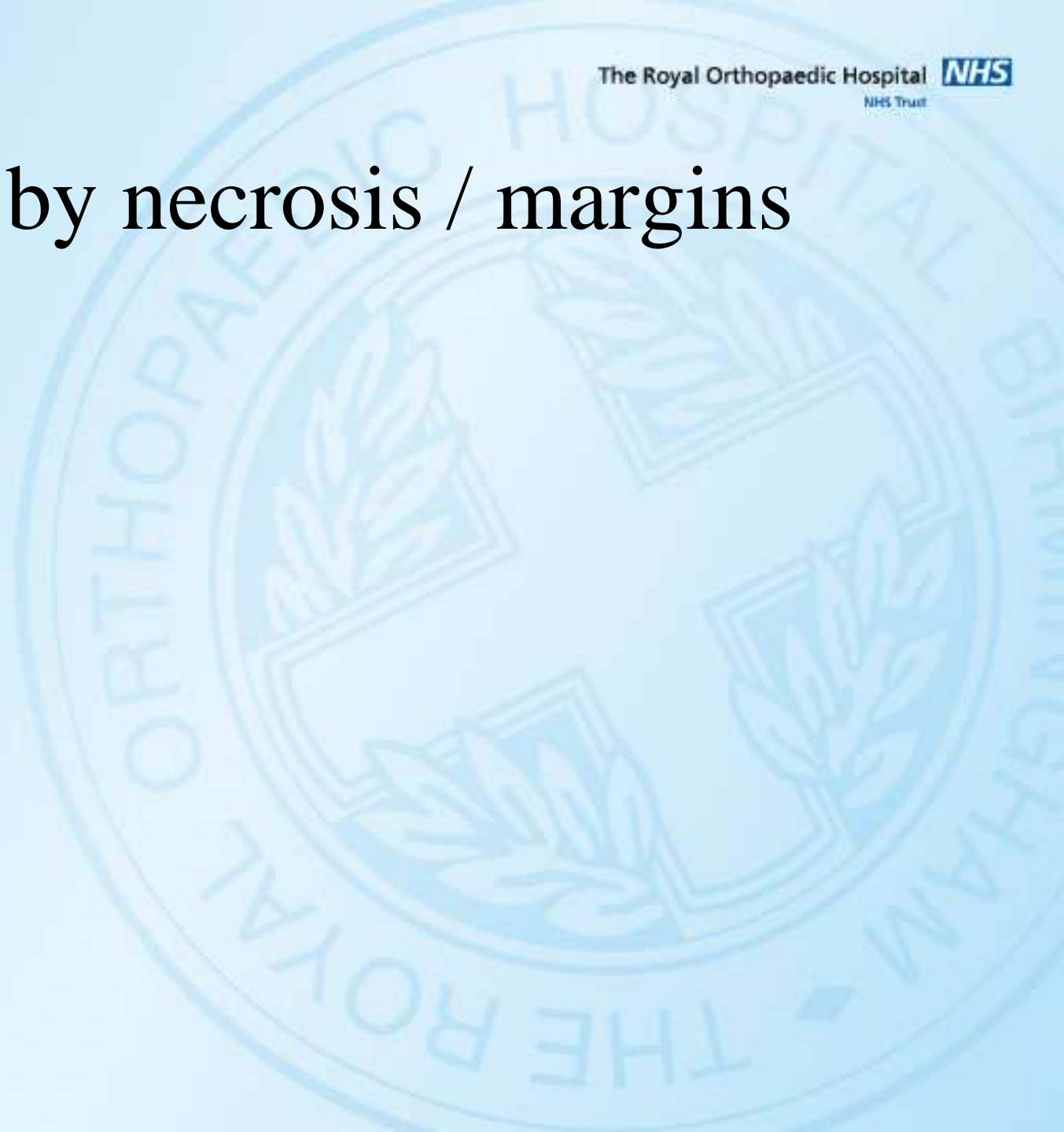
High risk of LR all patients with poor necrosis



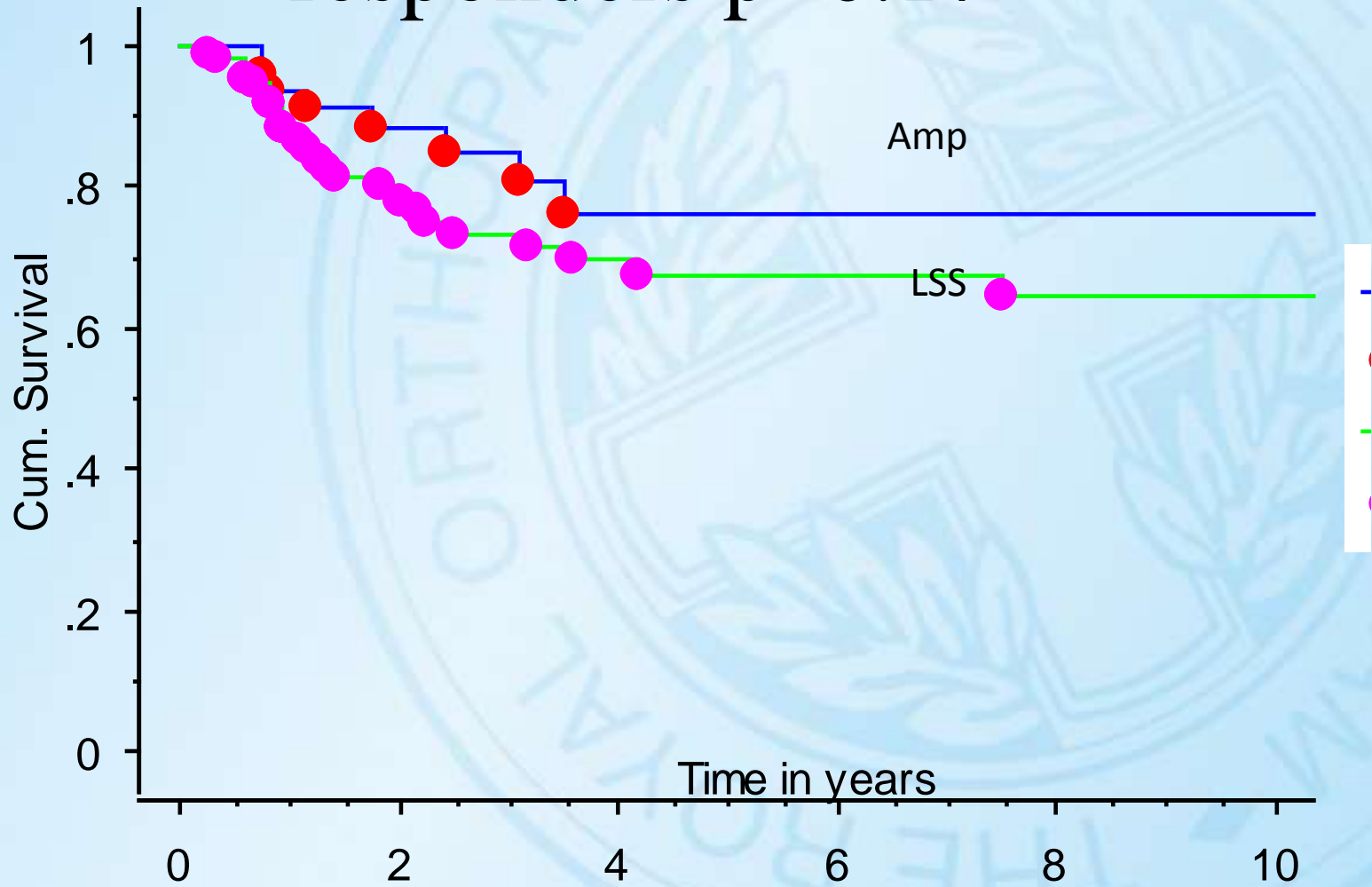
Risks of LR split by chemo response and margins

	Poor Necrosis	Good Necrosis
Marginal margin	25%	12%
Wide margin	15%	4%

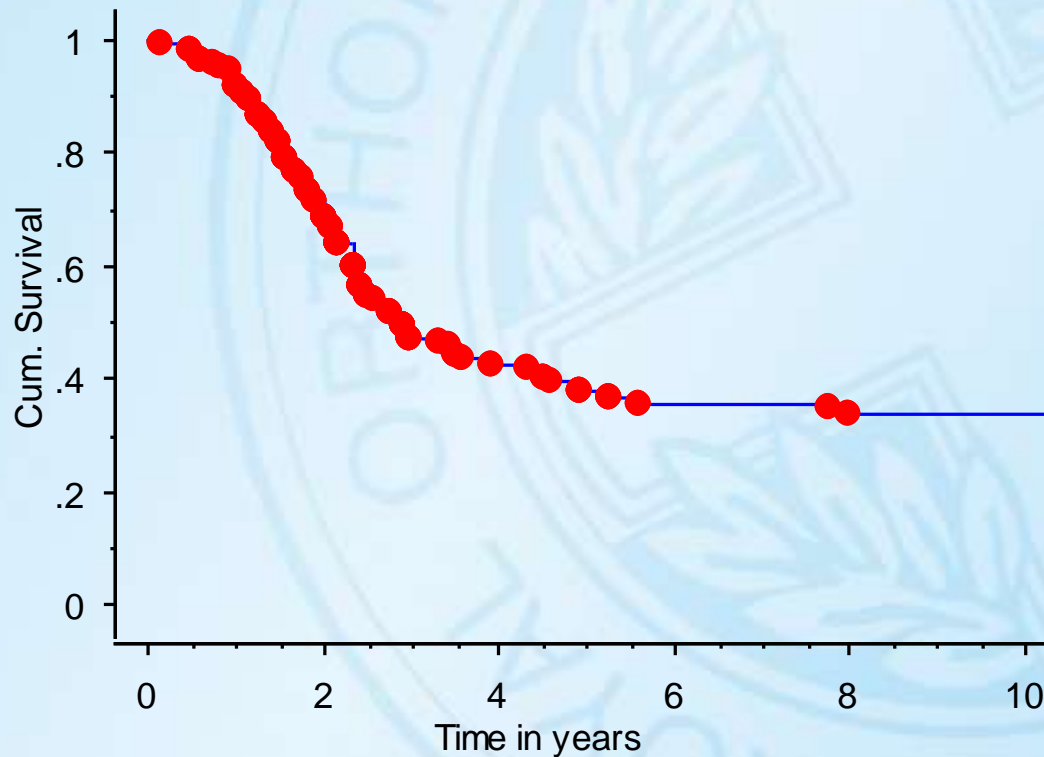
LR split by necrosis / margins



Higher risk of LR with LSS in poor responders $p=0.17$



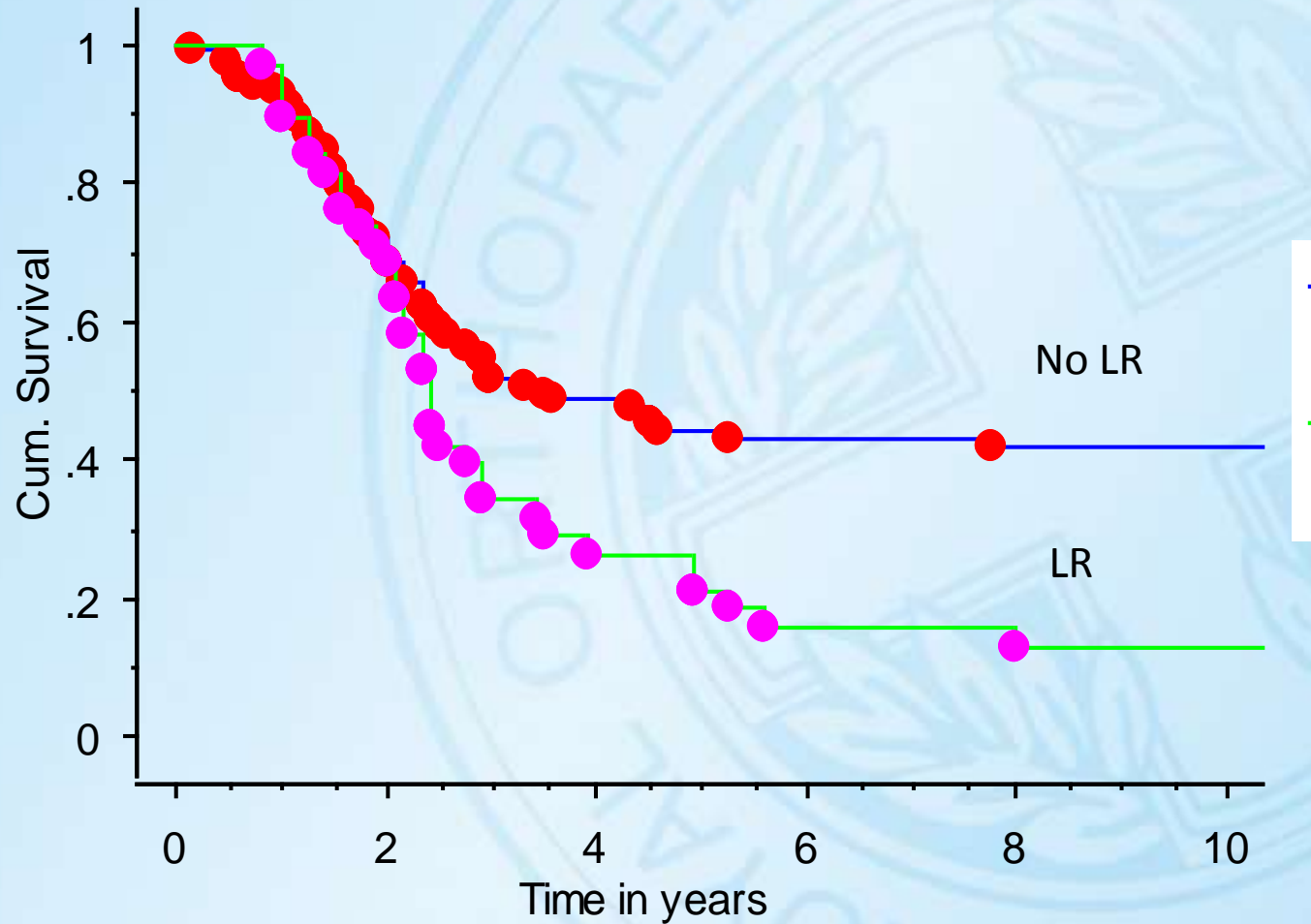
Overall survival – poor necrosis and marginal margin excision OR amputation



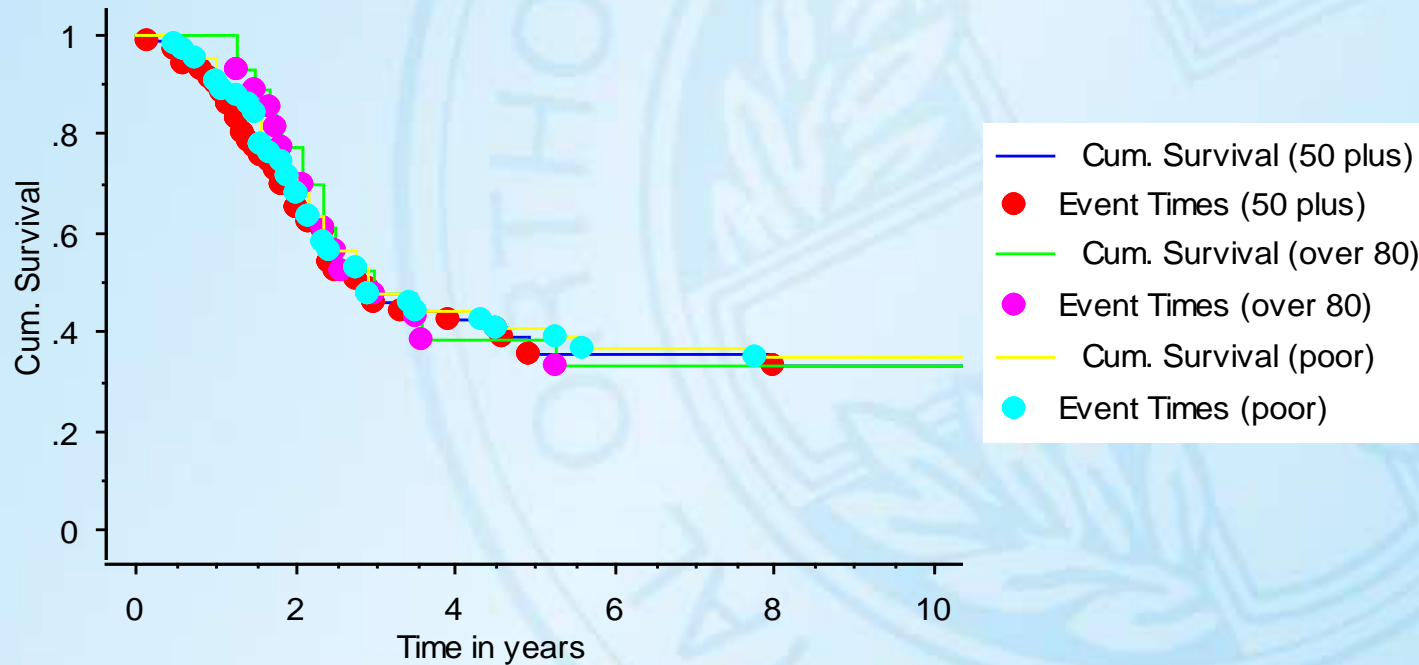
Survival split by necrosis / margin



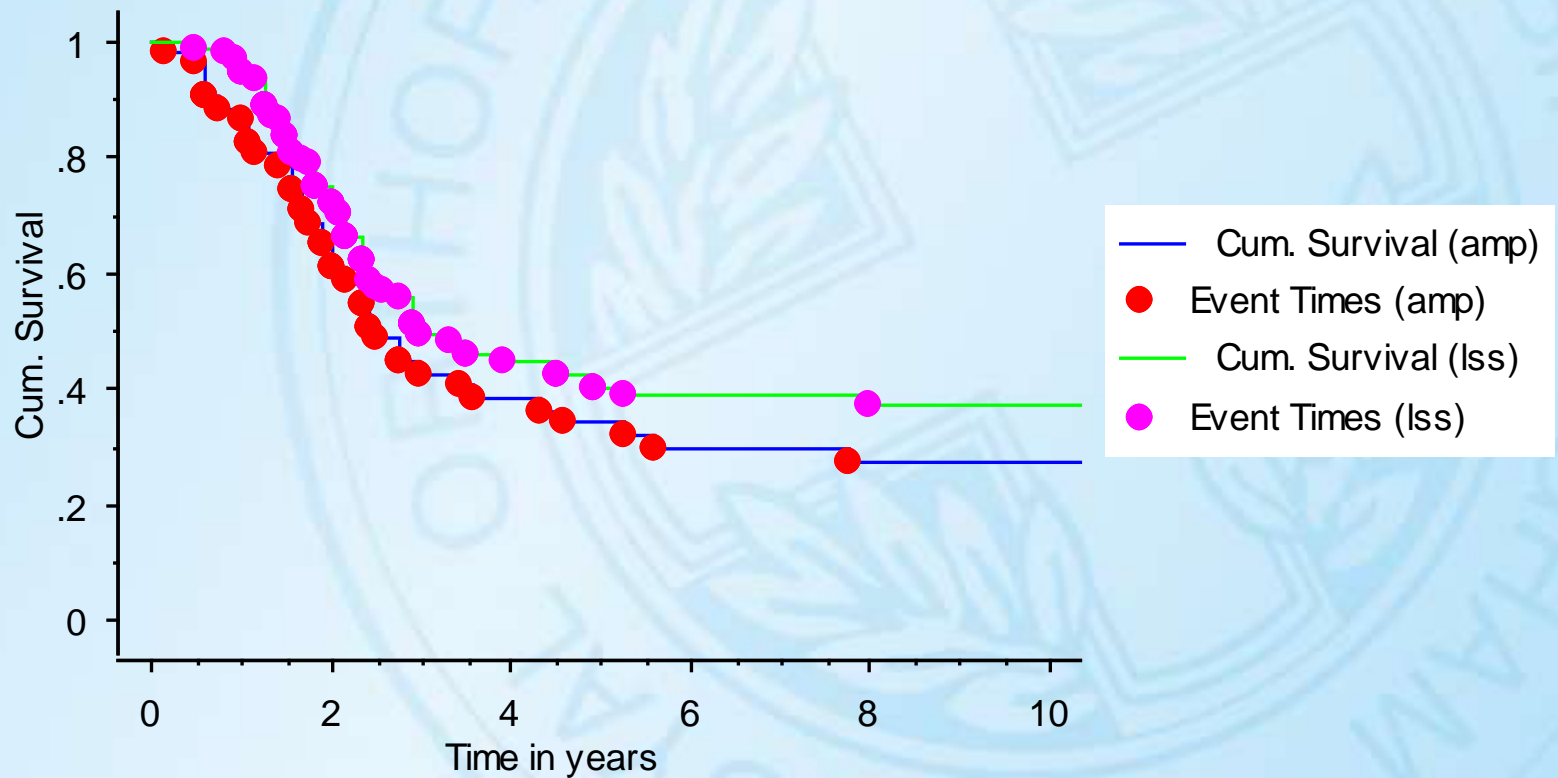
Survival following Local recurrence



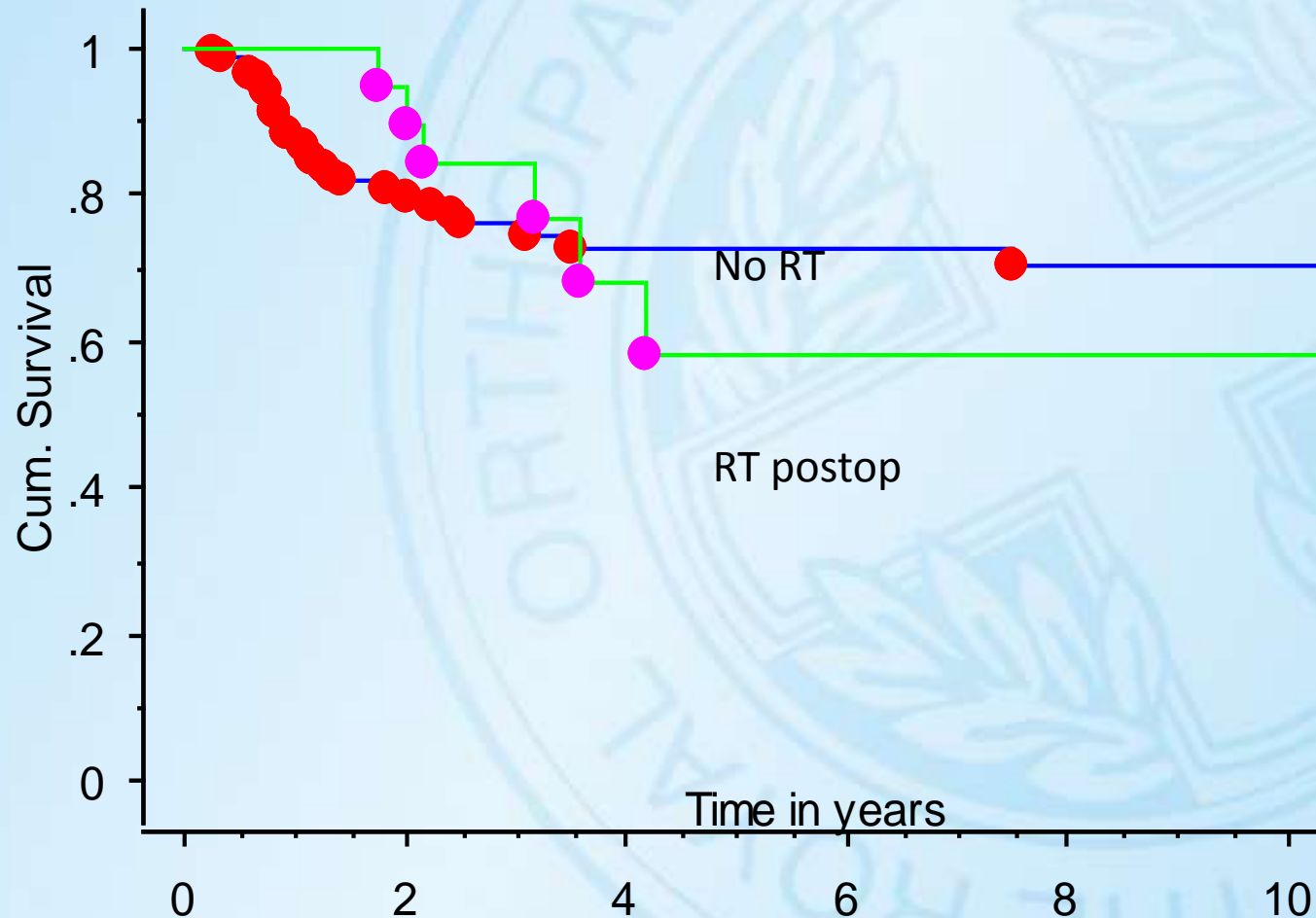
In Bad Responders Actual % necrosis not matter



Survival - No convincing difference between amputation and LSS ($p=0.17$) in patients with poor necrosis



Radiotherapy after LSS in poor responders or close margins -no convincing effect on LR



Histological Sub-type (EOI data)

- Fibroblastic– higher proportion of good responders
- Chondroblastic- lower proportion of good responders
- Good responders had a significantly better survival
- Although chondroblastic experienced a better long term survival.

Hauben et al Eur J Cancer 2002

Outcome of post irradiation osteosarcoma does not correlate with chemotherapy response

- Mean tumour necrosis 63.5%
- 7 patients 90% 4 died
- 5 year disease free survival estimate 27.2%
- Histological response does not relate with survival/prognosis
- Lewis et al Clin Orth Relat Res 2006

Conclusion

- Poor necrosis is bad news
- Marginal margins bad news
- Combination is very bad news
- Amputation not obviously improve outcome
- RT not obviously prevent LR
- What should you do with the poor responder with a predicted marginal margin?
 - Change Chemo ?
 - Amputate to try and avoid LR ?
 - LSS +/- RT ?