



LEIDEN UNIVERSITY MEDICAL CENTER

Multiple Osteochondromas

Clinical and radiological risk factors for malignant degeneration

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- Background:

- Malignant transformation; the most serious complication of *Multiple Osteochondromas (MO)*
- Previous reports based on data of different cartilage tumours
- Malignant transformation rate various between 1-25%
- Diagnosis of *Secondary peripheral chondrosarcoma (SPC)* arising in *Osteochondromas (OC)* is difficult and objective criteria are lacking

- Aim:

- Identification of a subgroup of MO patients who are at risk for malignant transformation

- Database:

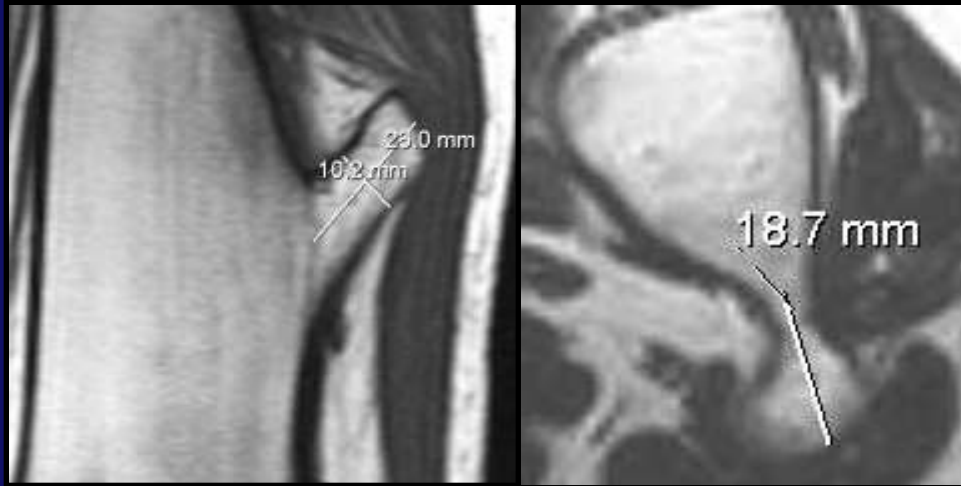
- 64 patients with MO
- Diagnosed and surgically treated at the LUMC between 1980-2009
- Clinical, radiological, surgical and pathological data were collected

- Subgroup for analysis:

- 24 patients with complete records and MRI scans available
- 14 OC and 10 SPC patients

- Volume measurement:

- Assumption tumours are ellipsoid
- Ellipsoid volume $4/3*\pi*a*b*c$ (in cm^3)
- Measurements based on MRI scans



- Cartilage cap thickness:

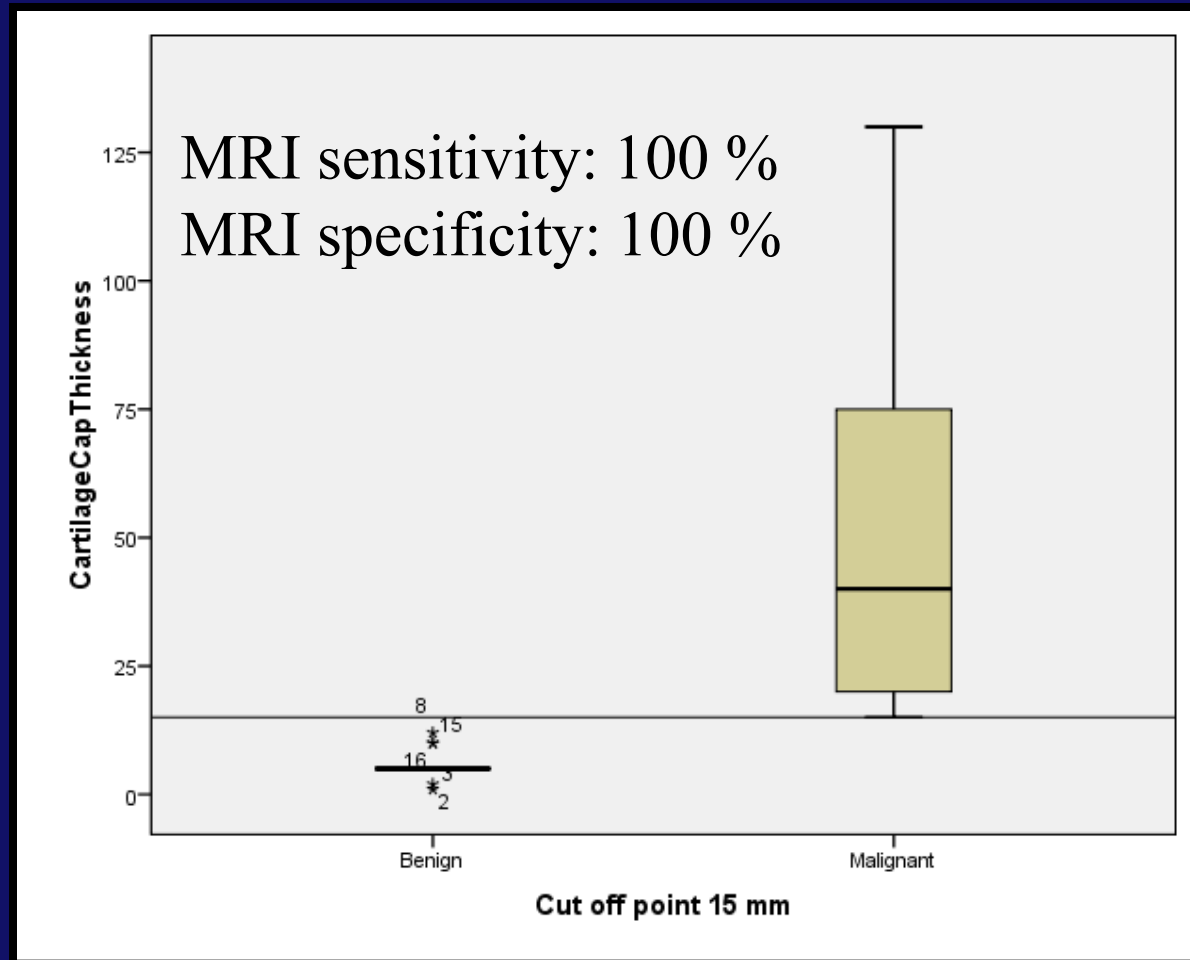
- Measurements done by MRI scans



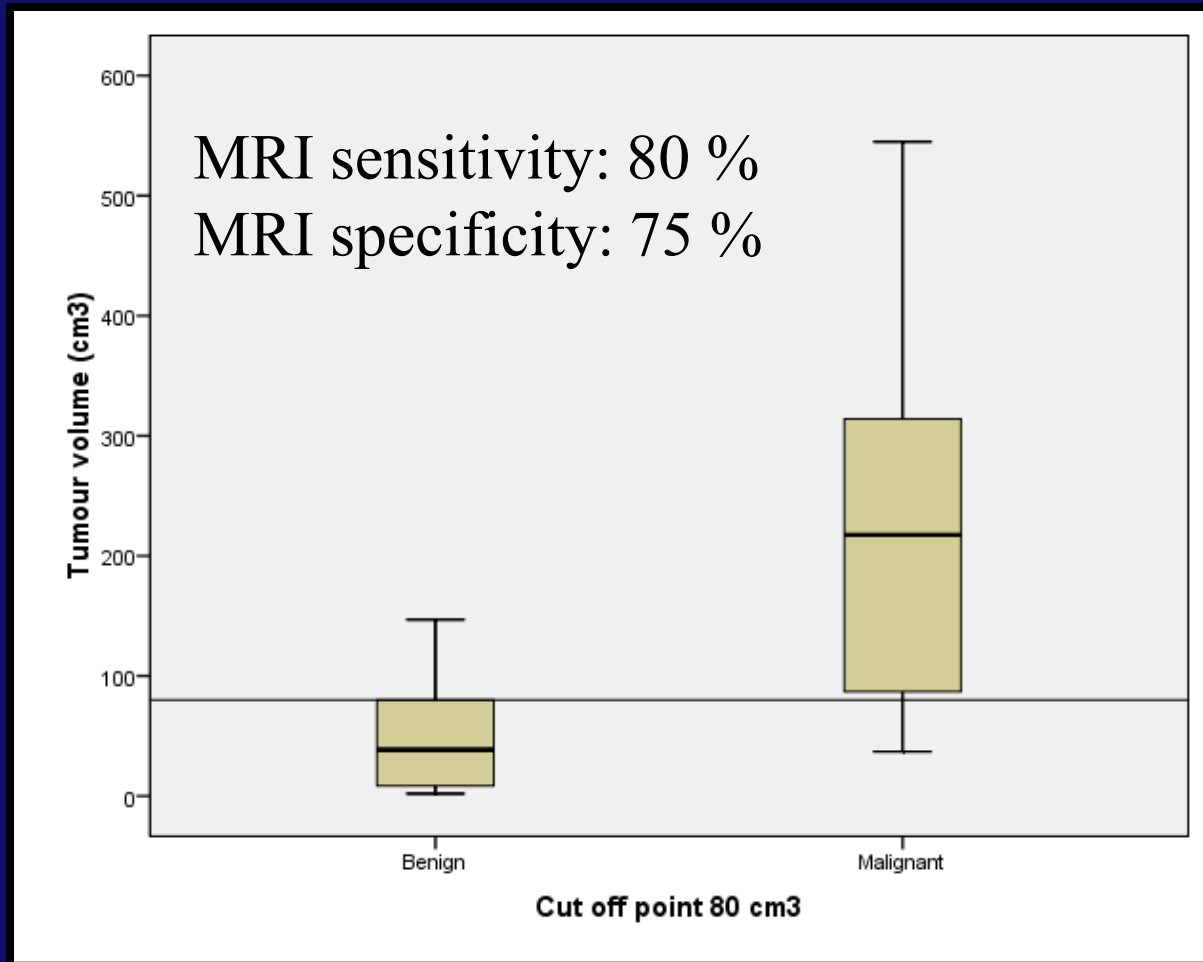
- Pathology:

- Correlation tumour volume and cartilage cap thickness

Cut off point cartilage cap thickness



Cut off point tumour volume



Conclusions and recommendations

- Clinical signs are non-reliable indicators for malignant transformation
- MRI scans should be used routinely in screening protocols and not only for lesions with clinical symptoms
- Cartilage cap thickness and volume measurements should be standardized and implemented in screening protocols

Take home message

- Malignant transformation:
 - A cartilage cap thickness > 15 mm on MRI scans
 - A tumour volume > 80 cm³ on MRI scans



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