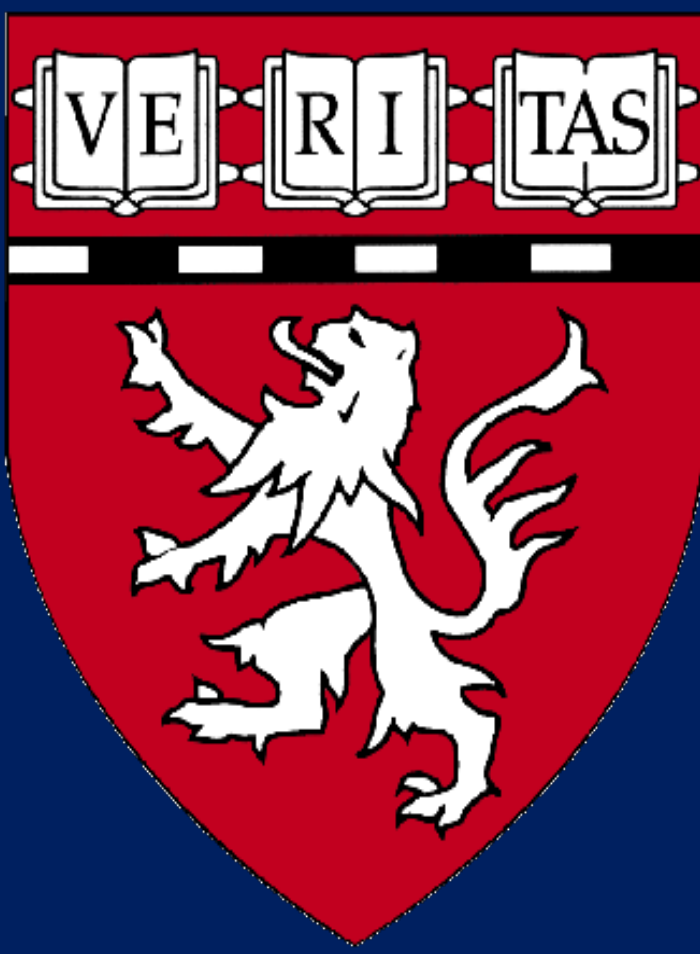




Pathologic Fractures in Primary Bone Neoplasms of the Fingers

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Aim

To report the incidence of pathologic fractures secondary to neoplastic processes in the metacarpals and phalanges, and to evaluate the predictors of pathologic fracture occurrence in this clinical setting.

Conclusion

Surgeons should have a lower threshold for surgical treatment of bone tumors in the small finger, as it is at higher risk for fracture.

Tumors of the metacarpals have a lower risk for a pathologic fracture, solely requiring monitoring as far as the patient is asymptomatic.

1. Introduction

- Primary bone neoplasms are rare and typically benign. Most common histology are enchondroma.
- They may present as a painful lesion but commonly present incidentally or as a pathologic fracture.
- There is no clear consensus to what locations are prone to become a pathologic fracture.

2. Methods & Study Population

Design:

- Retrospective
- ICD-9 Diagnosis codes
- Thirteen year period: 1992-2015

Inclusion:

- Phalangeal and metacarpal bone tumors

Exclusion:

- <18 years of age

Outcome:

- Pathologic fracture

Table 1: Patient Characteristics

Characteristic	All tumors (n=131)
Age, mean (SD), y*	42 (15)
Affected finger, n(%)	
Thumb	13 (9.9)
Index	21 (16)
Long	36 (27)
Ring	30 (23)
Small	31 (23)
Benign tumor, n(%)	
No	20 (15)
Yes	111 (85)
Affected bone, n(%)	
Metacarpal	34 (26)
Proximal phalanx	49 (37)
Middle phalanx	28 (21)
Distal phalanx	20 (16)

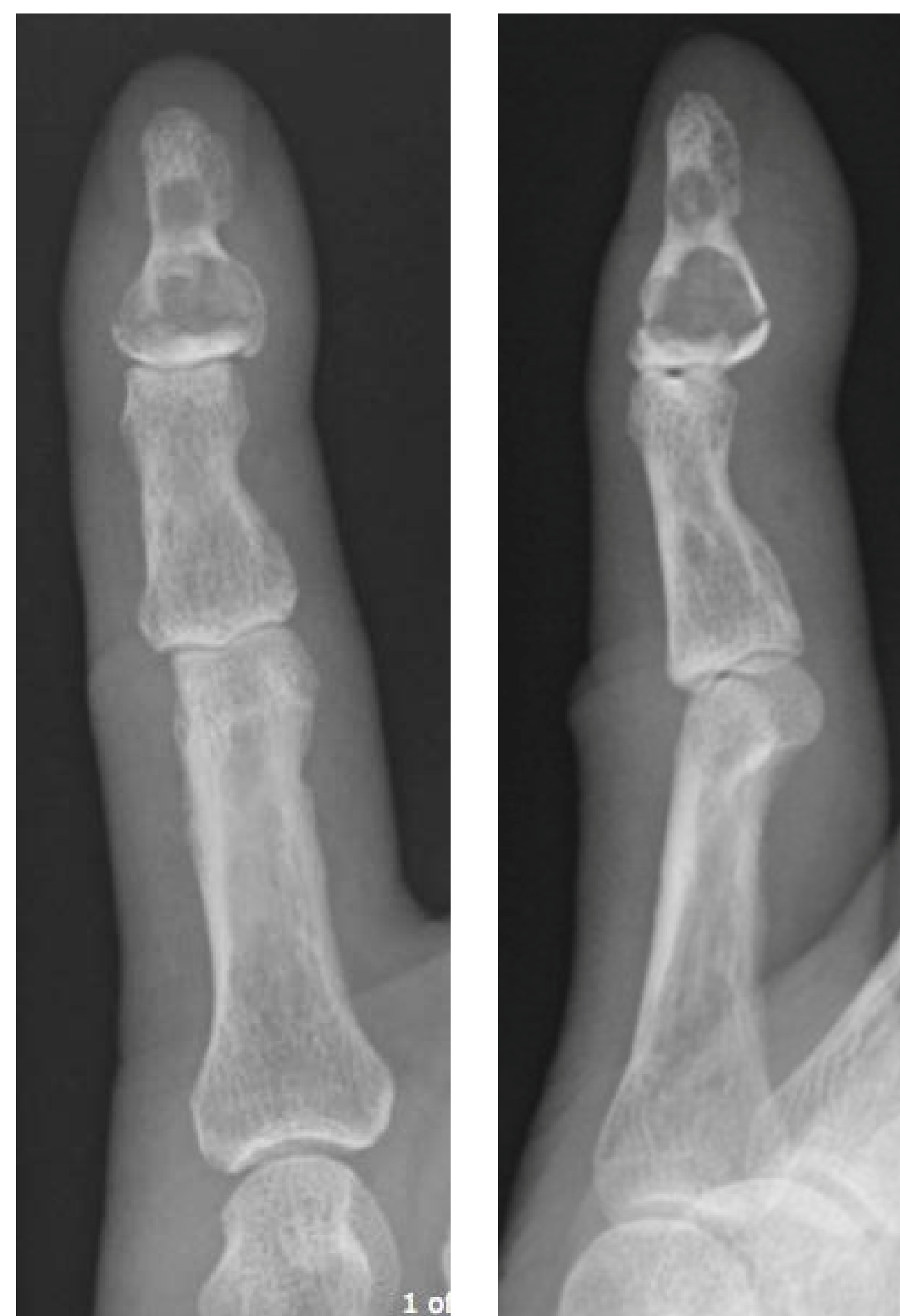
3. Results

Pathologic fractures:

- 42 % of tumors presented with pathologic fracture

Predictor:

- Higher risk in small finger (pathologic fractures in 65%)
- Lower risk in metacarpals (pathologic fractures in 18%)



Pathologic fracture through enchondroma

Sustained Injury

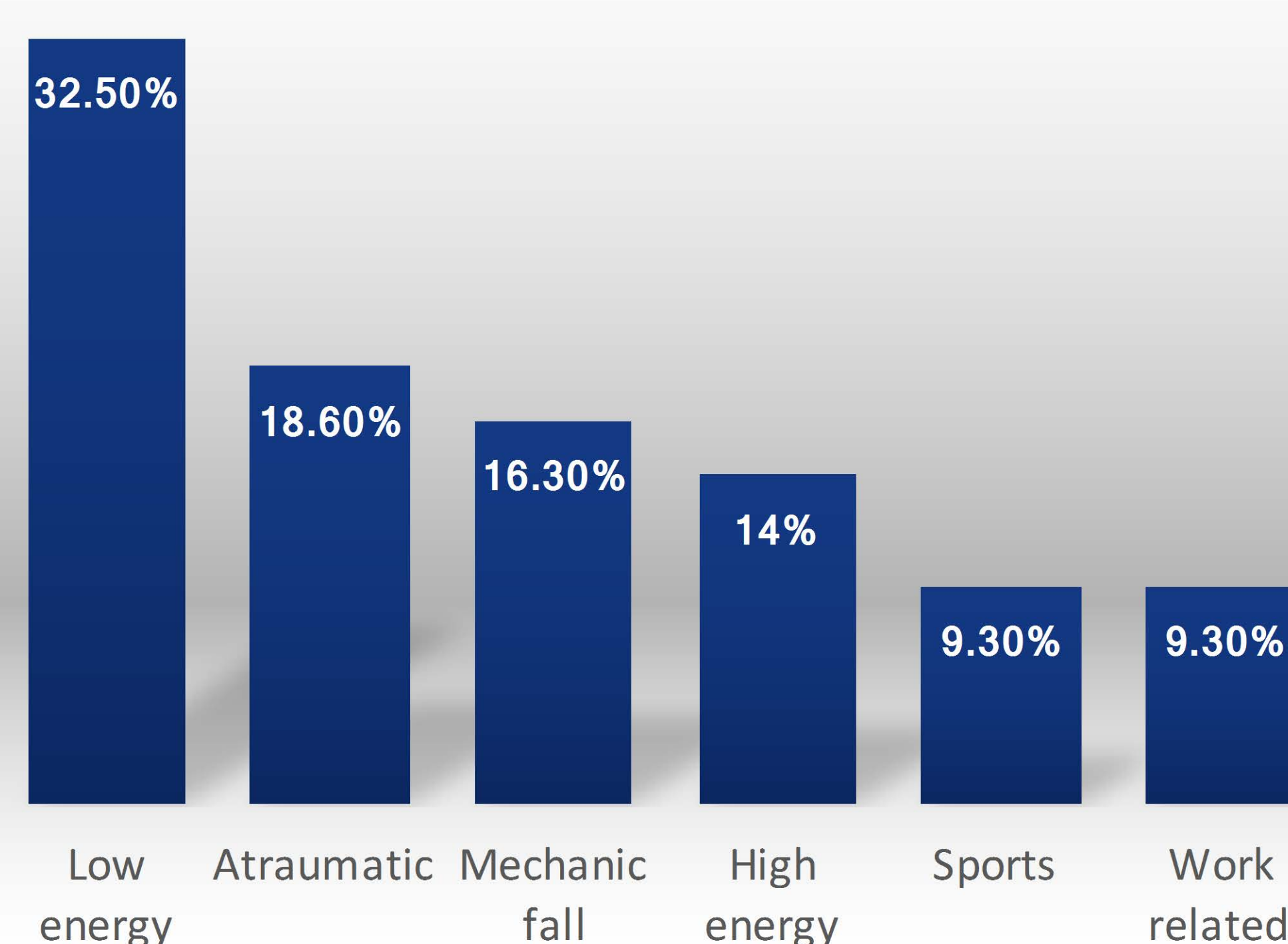


Table 2: Factors Independently Associated with Pathologic Phalangeal Fractures (n=131)

Characteristic	Odds ratio	Lower (95% CI)	Upper (95% CI)	P-value
Digit (ref: Long)				
Thumb	1.4	0.28	7.3	0.66
Index	1.1	0.31	3.7	0.90
Ring	2.8	0.96	8.3	0.060
Small	4.8	1.6	14	0.005
Phalanx (ref: Proximal)				
Metacarpal	0.21	0.070	0.66	0.007
Middle	0.79	.029	2.2	0.65
Distal	1.9	0.59	5.8	0.29

Area under the ROC= 0.74; P value for Hosmer–Lemeshow test (goodness-of-fit test) = 0.94