

Common Missed Imaging Findings in Musculoskeletal Radiology: A Retrospective Analysis

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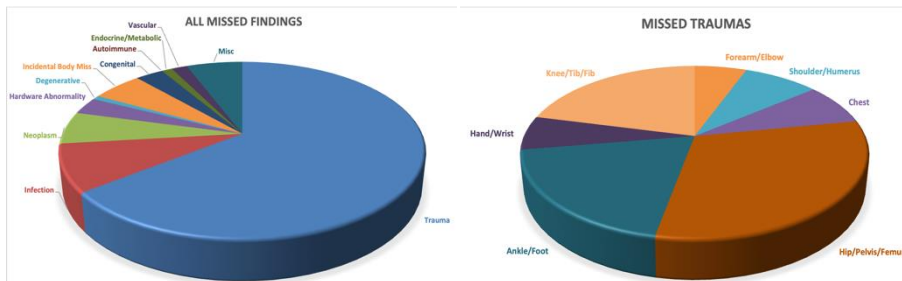
Background

- Consistently rising medical imaging volumes combined with the subtle pathology of the musculoskeletal (MSK) system can place radiologists at increased risk of missed findings.
- Increased awareness of the most common missed findings in MSK radiology is imperative to maintain diagnostic accuracy despite growing volume demands.
- A retrospective analysis of missed findings in our high-volume, subspecialty-based radiology practice was performed, with representative images provided for review.

Methods

- Radiologists submit cases (good calls and learning opportunities) to our peer learning program via PACS.
- A total of 534 imaging exams (386 XR, 98 CT, 46 MR, 4 US) were extracted from PACS with internally reported missed findings from January 2023 – June 2025.
- Cases were categorized by pathology, with trauma cases further subcategorized by body part.

Data



Figures 1 and 2: Depicting the distribution of all missed findings (left) and specifically which traumas were missed (right)

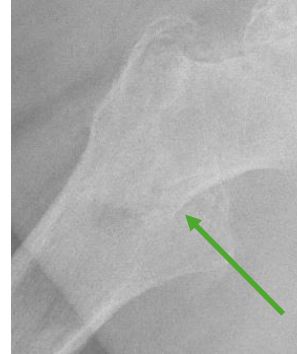
	Infection	Neoplasm	Hardware Abnormality	Degenerative	Incidental Body Miss	Congenital	Autoimmune	Endocrine/Metabolic	Vascular	Misc.
Total #	47	32	17	4	29	16	0	6	9	32
Most Common Missed Finding	Osteomyelitis	Lytic Bone Lesions	Hardware Failure/Displacement	N/A	Pneumothorax	Accessory Ossicles	N/A	Paget's Disease	AVN	Failure to Compare With Prior Exams
#	26	13	10		7	3		3	6	6
%	55%	41%	59%		24%	19%		50%	67%	19%

	Forearm/Elbow	Shoulder/Humerus	Chest	Hip/Pelvis/Femur	Ankle/Foot	Hand/Wrist	Knee/Tib/Fib
Total #	20	29	27	107	67	22	73
Most Common Missed Finding	Radial Fractures	Proximal Humerus Fracture	Clavicle Fracture	Intertrochanteric Fracture	5th Metatarsal Fracture	Various Metacarpal Fractures	Proximal Tibia/Plateau Fracture
#	8	11	13	17	12	8	16
%	40%	38%	48%	16%	18%	37%	22%

Charts 1 and 2: Depicting the total number of each miss (top) with further analysis of trauma misses alone (bottom), with the most commonly missed findings of each category highlighted

Example Images

Trauma



A) Intertrochanteric fracture (green arrow), missed on initial radiograph, seen on follow-up CT 1 day later



B) Left superior pubic ramus fracture (green arrow), edge of image field-of-view



C) Fibular head fracture (green arrow), only seen on this projection



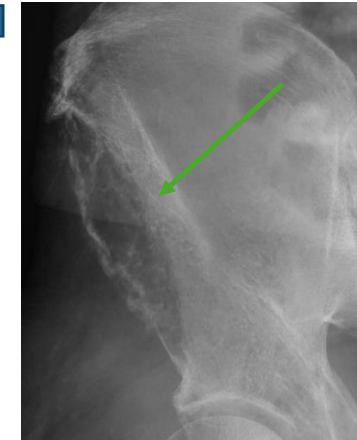
D) Lis-Franc injury (green arrow)

Infection



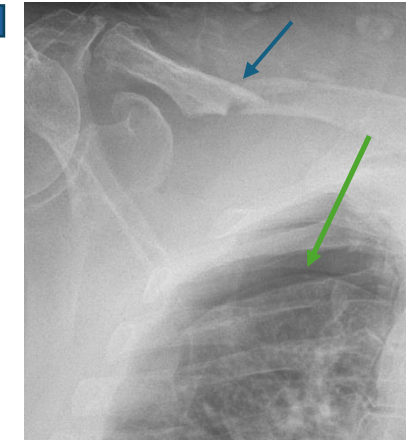
E) Subcutaneous gas with erosive changes at the ischial tuberosity (green arrows), seen on follow up CT 1 day later and diagnosed with osteomyelitis

Neoplasm



F) Expansile lytic lesion in the right iliac bone (green arrow), patient later diagnosed with metastatic lung cancer

Body



H) Missed the pneumothorax (green arrow) but diagnosed the right clavicular fracture (blue arrow)

Conclusions

- Awareness of common missed radiological findings in the musculoskeletal system is important as radiologists face consistently rising imaging volumes.
- Retrospective analysis of missed findings in our practice demonstrated that the majority of perceptual errors occur in the trauma setting on plain film, likely secondary to overall volume of trauma imaging as well as the subtlety of certain fracture patterns.
- Common pitfalls include insufficient interrogation of the edge of field and the included soft tissues and other organ systems.