

# The Use of Ultrasound in the Evaluation of Hand Injury: A Case Report

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## CASE DESCRIPTION:

46-year-old woman presented with pain in her left hand after trauma.

She was walking her large dog when the dog suddenly pulled on the leash.

She initially felt a pop in the hand and developed pain exacerbated by opening jars, described as sharp around the 4<sup>th</sup> metacarpal.

Examination of the hand revealed tenderness to palpation on the left 4<sup>th</sup> metacarpal dorsal aspect of the hand, but was otherwise normal without atrophy, deformity, swelling, or ecchymosis. Strength, sensation, and dynamic movements were normal.

Point of care ultrasound performed in the office of the left hand showed left fourth dorsal metacarpal distal one third focal step off deformity and periosteal lift-off/hyperemia suspicious for fracture (Figure 1).

Given these findings, an X-ray of the left hand was obtained showing a nondisplaced, spiral left fourth metacarpal shaft fracture (Figure 2).

The patient was treated with immobilization and referred to orthopedic hand surgery.

Figure 1: Ultrasound of Left 4<sup>th</sup> Metacarpal

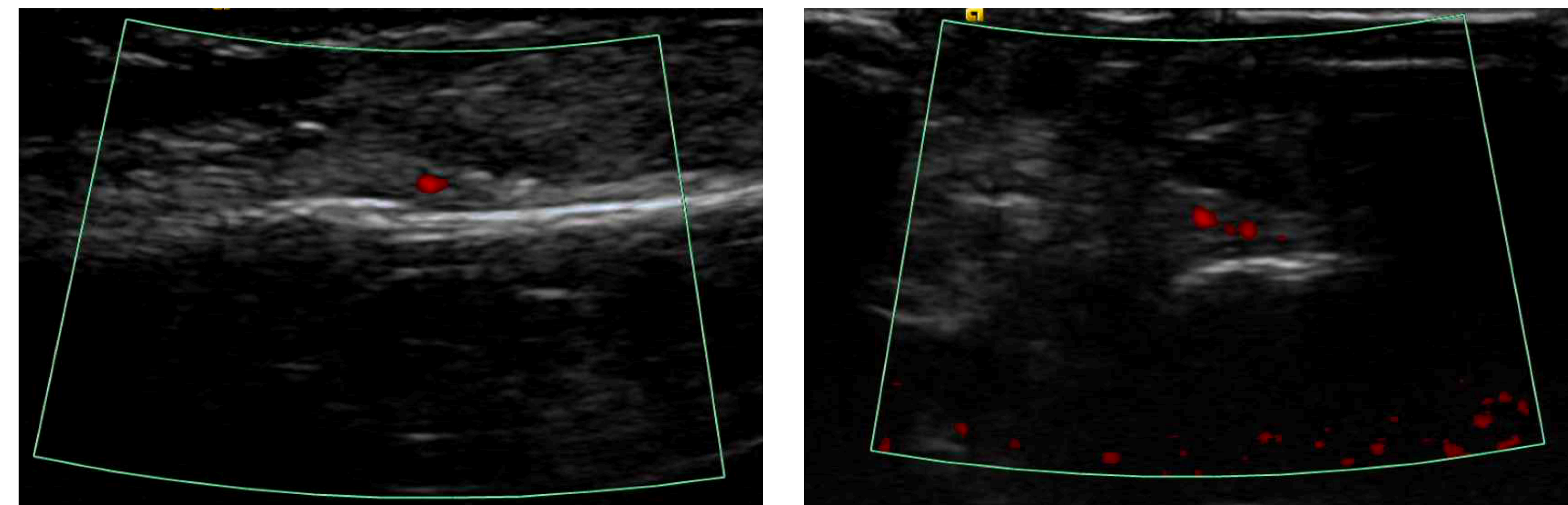
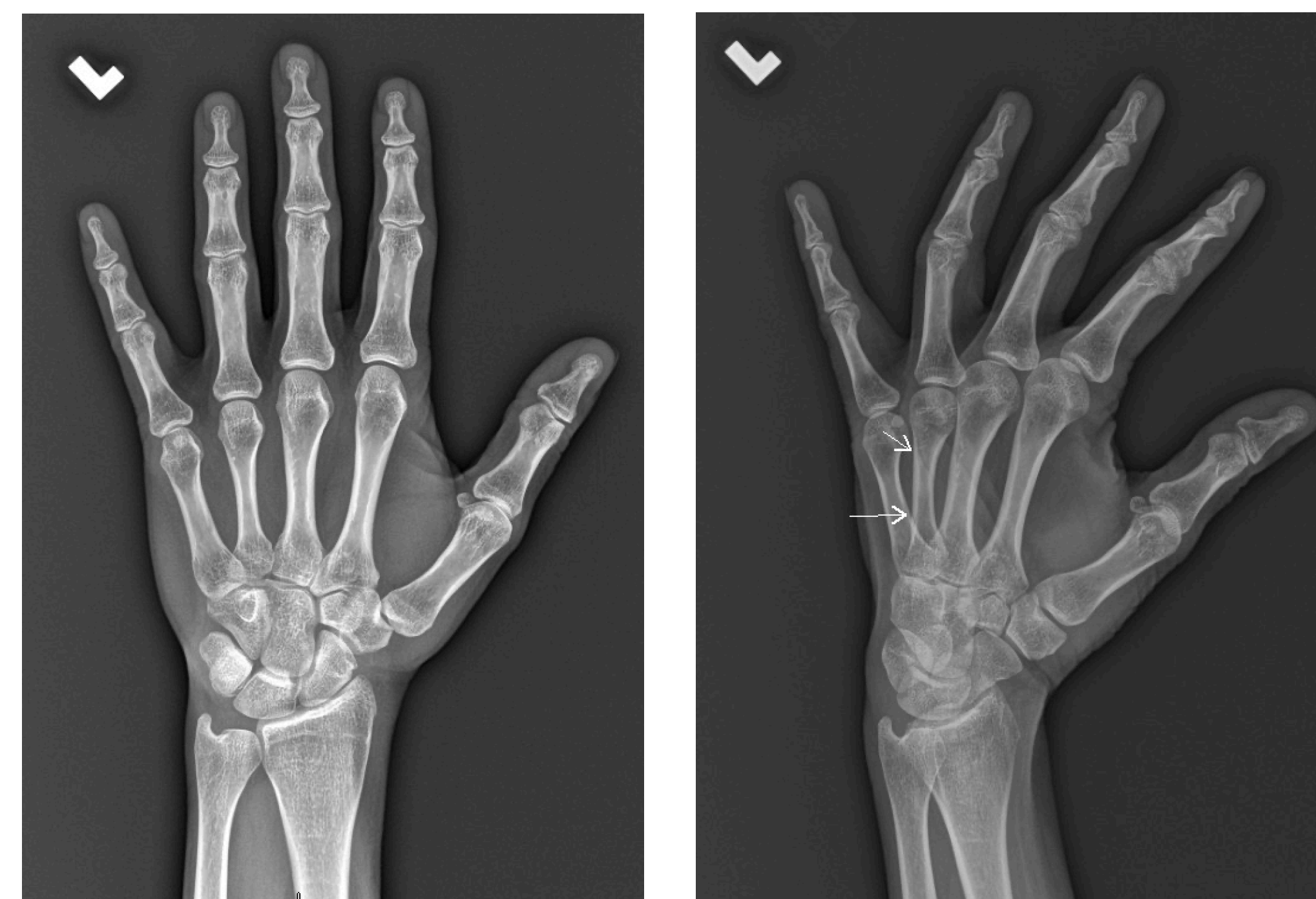


Figure 2: X-Ray of Left Hand



## DISCUSSIONS:

The use of ultrasound in musculoskeletal medicine has rapidly grown in recent years in part due to increased technological advancements, safety, and accessibility.<sup>1,2</sup> Ultrasound has become a useful adjunct to the musculoskeletal exam. In this case, the patient's benign presentation and physical exam suggested a ligamentous injury or muscle strain as the likely diagnosis. The use of point of care ultrasound in the office setting showing signs concerning for fracture expedited the patient's diagnosis and treatment.

## CONCLUSIONS

This case illustrates the utility of ultrasound in detecting soft tissue and bony abnormalities that may be missed in the history and physical exam.

## REFERENCES

1. Sharpe RE, Nazarian LN, Parker L, Rao VM, Levin DC. Dramatically increased musculoskeletal ultrasound utilization from 2000 to 2009, especially by podiatrists in private offices. *J Am Coll Radiol.* 2012;9(2):141-146. doi:10.1016/j.jacr.2011.09.008
2. Finnoff JT, Hall MM, Adams E, et al. American Medical Society for Sports Medicine (AMSSM) position statement: interventional musculoskeletal ultrasound in sports medicine. *PM R.* 2015;7(2):151-68.e12. doi:10.1016/j.pmrj.2015.01.003