

Double Trouble: Frykman VIII Distal Radius Fracture with Brachial Plexus Injury

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INTRODUCTION:

Neurogenic effect on bone metabolism and remodeling is an interesting branch of science that triggered in-vivo studies correlating nerve injury and bone remodeling.

REPORT:

We report a 43-year-old gentleman with diabetes mellitus sustained closed fracture distal end left radius and ulna Frykman 8. This patient on presentation showed clinical findings of ipsilateral post-ganglionic incomplete brachial plexus injury. Patient underwent distal radius volar rim plating and ulna hook plate of the left wrist. Nerve conduction study shows posterior cord is spared. Serial reviews showed an advancing Tinel with post operative x-rays showed gradual ulna styloid resorption and osteopenia of the bone (Figure 2). All rehabilitation program as per brachial plexus injury protocol was carried out.

CONCLUSION:

Much research has focused on the effects of brachial plexus injury on nerve function and muscle strength, but less is known about the impact of this injury on bone healing and resorption. Recent studies have suggested that brachial plexus injury can lead to delayed bone healing and increased bone resorption. In vivo study of denervated rats showed a significant delay in bone healing compared to control rats. It is suggested that peripheral nervous system is intertwined deeply with fracture healing and remodeling which may suggest lower bone mineral density compared to healthy controls². In summary, brachial plexus injury can have negative effects on bone healing and may lead to increased bone resorption. Further research is needed to develop effective treatments to mitigate these impacts on bone health.



Figure 1: Post Operative Day 2



Figure 2: Post Op 6 Months

REFERENCES:

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2. Tao, R. et al. Hallmarks of peripheral nerve function in bone regeneration. *Bone Res* 11, 6 (2023)