

## Simultaneous Brachial Artery Injury and Ulnar Nerve Palsy: A Case Study of an ATV Accident Survivor

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# **Simultaneous Brachial Artery Injury and Ulnar Nerve Palsy: A Case Study of an ATV Accident Survivor**

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## **Background:**

All-terrain vehicle (ATV) accidents are a common cause of traumatic elbow injuries due to outstretched arms accepting contact at greater forces. However, their complexity and clinical significance often go unrecognized upon initial evaluation, especially in patients without acute fractures. Sequelae of such injuries can include neurovascular deficits, leading to chronic pain, limb ischemia, and paresthesias. This article aims to present a case study detailing a post-traumatic elbow injury with chronic neurovascular deficits following an ATV accident. Additionally, we address common clinical findings in post-traumatic concomitant brachial artery and ulnar nerve injuries, their evaluation, and respective management plans.

## **Case Presentation:**

Our patient was a 38-year-old uninsured female who presented with concerns of right upper extremity pain and paresthesias in the setting of an ATV accident six months prior. History was notable for a blood pressure discrepancy, episodic hypertension, dull, deep pain, and paresthesias throughout her right upper extremity prior to presentation. Physical examination was notable for a radial pulse discrepancy and decreased peripheral ulnar nerve sensation in her right upper extremity, raising concern for a chronic neurovascular deficit. Further evaluation was obtained via bilateral Arterial Doppler studies, and the management of her neurovascular injury is detailed furthermore in this article.

## **Conclusion:**

For traumatic elbow injuries complicated by neurovascular deficits, appropriate identification, and management is key for good long-term outcomes. Additionally, the presence of arterial, neurological, or both arterial and neurological deficits on presentation can impact the long-term outcome of such injuries. Management options for untreated traumatic elbow injuries with chronic neurovascular deficits is a shared decision, largely based on functional capacity and quality of life. However, in rare scenarios, surgical intervention may be warranted.

**Keywords:** ulnar nerve palsy, brachial artery injury, neurovascular injury, limb ischemia, paresthesia, traumatic elbow injuries