

## Functional Outcome Of Severe Gunshot Injury Over Wrist Complicated With Floating Wrist: 8 Years Follow Up

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### INTRODUCTION:

Gunshot injury to upper limb is debilitating and commonly cause significant functional impairment. We report a patient with a severe injury to wrist and its functional outcome after 8 years.

### CASE REPORT:

A 26 year old right hand dominant gentleman sustained a severe gunshot injury in 2009. He underwent emergency wound debridement on the day of trauma. Initial wound debridement revealed unreparable extensor tendons cut at the 2<sup>nd</sup> to 6<sup>th</sup> compartments with open comminuted fracture of distal radius with 8cm bone loss. His wound was made complicated with infection and he underwent another 3 wound debridements and insertion of external fixation.

### RESULTS:

His wound improved and healed after multiple episodes of debridement. He was discharged from ward after 5 weeks. External fixation was removed after 8 weeks post trauma. He was not keen for subsequent corrective procedure. Immediately after the removal of external fixation, he returned to work. He works as a gardener at a public school. Currently, 8 years post trauma, his wound has healed well without any evidence of chronic infections. He is unable to extend his wrist joint but the joint is still mobile. The flexion of the fingers over metacarpo-phalangeal joint are 0 – 45<sup>o</sup> and interphalangeal joint are 0 – 60<sup>o</sup>. There is a reduced power grip compared to contralateral hand (Figure 1). Radiologically, there's indwelling absence of radiocarpal joint (Figure 2). He does most tasks such as writing, feeding and carrying heavy items using his left hand. Despite severe deformity, his right hand is still functioning. He is still able to perform fine motor movement such as picking up coins and button up his shirt using his right hand. He is still able to drive motorcycle by holding and turning the throttle with his right hand without difficulty. We measured his abilities using the Disabilities of Arm, Shoulder and Hand (DASH) score and he scored 48.3. He is still not keen for further surgical intervention.

### DISCUSSION:

Gunshot injuries with gunshot fracture is becoming more frequent. In one retrospective study, majority of the injuries involved the lower limb. It is reported that only 5% of the cases involved the wrist (Alon, B & et al, 2009). Due to velocity and missile mass, gunshot injuries can cause significant soft tissue, bone, vascular, musculotendinous and nerve injuries. Flexion injuries of hand and wrist causes poorer outcome as compared to extensor injuries. It is reported that a total loss of extension of the fingers have no statistical significant on the function of the hand. Rather, it impacts the strength of the hand. Similarly, the number of fingers affected also does not show statistically significant effects on both function and power of the hand (Zylyk, A & Jagielski, W., 2007). In our case, his flexor tendons were preserved and thus he is able to preserve the functions of his hand.



Figure 1:  
Figure showed the deformity of the hand



Figure 2: Patient's radius and ulna x-ray showing loss of the radiocarpal joint.

### CONCLUSION:

Long term functional outcome of severe wrist trauma can be acceptable especially with preservation of wrist and finger flexors despite bizarre radiological outcome.

### REFERENCES:

- Alon, B., Galit, N., Moshe, S., Barak, H., Snir, H. Steven, V., & Israel, D. (2009) *Treating Civilian Gunshot Wounds to the Extremities in a Level 1 Trauma Center: Our Experience and Recommendations*. The Israel Medicine Association Journal. 2, 546-551
- Zylyk, A., & Jagielski, W. (2007). *The effect of the severity of the Dupuytren's contracture on the function of the hand before and after surgery*. The Journal of Hand Surgery, European Volume 32, 326e329.