

# Vibrio Metschnikovii: A Rare Microorganism Causing Wound Infection Resulting to Delayed Union in Both Bone Forearm Fracture

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**Abstract:** *Vibrio Metschnikovii* was isolated from a 51 yrs old female patient who presented with complaints of pain and deformity in left forearm. patient had history of road traffic accident with fall in sewage water. then patient sustained Grade IIIB compound injury on left forearm. swab taken from wound site grew *Vibrio metschnikovii*. the isolates appeared as catalase - positive and oxidase - negative, gram - negative, slightly curved rods. growth on MacConkey agar was poor with positive lactose utilization. *V. metschnikovii* can be found in various aquatic habitats, including streams, lakes, marine waters, and sewage. The present report describes the case of a wound infection by *V. Metschnikovii* in a female patient leading to delayed union of fracture. **Case Report:** A 51 yrs old female patient had history of road traffic accident with fall in sewage water, sustained grade IIIB compound injury on left forearm with fracture of both radius and ulna. patient underwent wound debridement, rush nail for left ulna and external fixator for left radius. then after 1 month external fixator gets infected then for 6 weeks antibiotic coverage to control the infection. Then External fixator was removed. and kept in above elbow slab for 2 weeks once infection-controlled patient underwent definitive treatment with open reduction and internal fixation with locking compression plate for left radius this could be attributable to *Vibrio metschnikovii*. **Conclusion:** patient achieved delayed fracture union after 6 weeks of antibiotic treatment, regular wound debridement and conversion of external fixator to definitive treatment

**Keywords:** Delayed Union, *Vibrio. Metschnikovii*, External Fixator, Wound Debridements

## 1. Introduction

**DELAYED union:** occurs when a fracture has not healed in the time frame that would be expected. The time frame for healing varies for different locations around the body and is different based on the degree of associated soft tissue injury. Generally the time frame for delayed union is between 3 and 6 months. Delayed union can be thought of as a precursor to nonunion.

**NON-UNION:** Defined as established when a minimum of 9 months has elapsed since injury and fracture shows no visible progressive signs of healing for 3 months (no progression of healing without further intervention)

## 2. Case Report

A 51 yrs old female patient presented to emergency with complaints of pain and deformity in left forearm and patient had a history of road traffic accidents with toppling of auto and fall in sewage water and came to us and was diagnosed as Grade IIIB compound injury with both bone forearm fracture for which she underwent temporary fixation procedure of external fixator for left radius and rush nail for ulna then after 1 month external fixator gets infected with pus discharge then was treated with appropriate antibiotic coverage and regular dressing for next 6 weeks then external fixator is removed because fracture site is not uniting and kept the forearm in above elbow slab for 2 weeks for

infection to control and fit for definitive fixation (open reduction and internal fixation with locking compression plating for left radius) for fracture to heal. patient had no comorbidities.

## 3. Examination

**On Inspection:** A 11 cms laceration present over dorsal aspect of left forearm. swelling present, visible deformity present.

**On Palpation:** Tenderness present over fracture site. palpable deformity present, distal pulses are felt.

**Movements:** Range of movements are painful and restricted.

### Investigations

Plain radiographs shows middle and distal 1/3<sup>rd</sup> junction of both bone fracture of left forearm. Blood investigation shows elevated wbc counts, platelets, ESR, CRP. Pus discharge sent for culture and sensitivity shows a rare microorganism i. e. VIBRIO METSCHNIKOVII and antibiotic sensitivity test shows resistant to ampicillin, piperacillin/tazobactam, and cefoperazone/ sulbactam, sensitive to amikacin, gentamycin, ciprofloxacin, imipenem and meropenem

**Treatment**

Initial primary, secondary survey is managed i. e, underwent irrigation and debridement, followed by temporary fixation procedure of external fixator for left radius and rush nail for ulna. Then fixator get infected and discharge present, Then pus discharge sent to culture followed by 6 weeks antibiotics and wound dressing. fracture site is not uniting so external fixator is removed for left radius after 3 months then for next 2 weeks allow for infection controlled with forearm in above elbow slab. once infection controlled then underwent definitive fixation with open reduction internal fixation with locking compression plate with bone grafting.

WOUND PICTURE



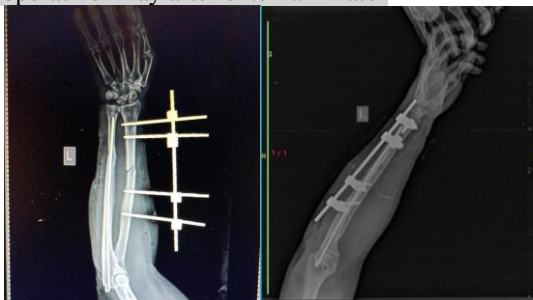
PRE- OP X RAYS



INTRA-OP PICS



Post operative x ray after external fixator

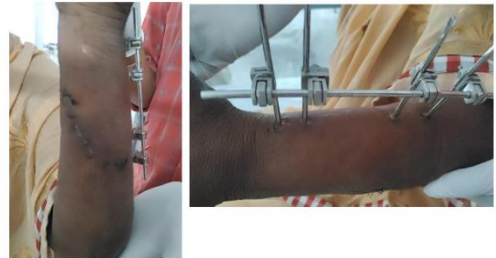


INFECTED EXTERNAL FIXATOR



Vibrio. metschnikovii a rare micro organism was isolated from 51 yrs old female patient from swab culture taken from the wound site, these isolates is catalase - positive, oxidase - negative, gram negative, slightly curved rods. growth on macconkey agar was poor with positive lactose utilization. these can be found in various aquatic habitats, including streams, lakes, marine waters, and sewage. these isolates was identified by VITEK 2 SYSTEM.

POST ANTIBIOTIC TREATMENT



REMOVAL OF EXTERNAL FIXATOR AND APPLIED ABOVE ELBOW SLAB



**2 WEEKS AFTER REMOVAL OF ABOVE ELBOW SLAB**



**PALPABLE CREPITUS**



**IMMEDIATE POST OP X RAYS AND SURGICAL SCAR**



**1 MONTH OLD POST OP X RAYS**



**3 MONTHS OLD POST OP X RAYS**



**6 MONTHS OLD POST OP X RAYS**



**RANGE OF MOVEMENTS**



#### 4. Conclusion

Patient achieved delayed fracture union due to infected rare causative micro - organism, after 6 weeks of antibiotic treatment, regular wound debridement and conversion of external fixator to definitive treatment (open reduction and internal fixation with locking compression plating) and achieved union.

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