

## Use Sonography to Identify Patients with Snakebite Induced Compartment Syndrome

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**OBJECTIVE:** This study aimed to investigate whether there is compartment syndrome after snakebite by the sonography. Snakebite wound easily progress to compartment-like syndrome. The sonography is used to evaluate the local effects of snake venom, including edematous location and indirect intracompartmental pressure.

**METHODS:** Twenty-two snakebite patients were recruited in our hospital in two-years period, 2017-2019. We used sonography machine, Sparq (PHILIPS ULTRASOUND) and a 15 Hz liner probe. We made a standard protocol including snake identify, a series of blood sampling, wound monitor and antivenin treatment. The bitten limb was scanned from the bitten site to the maximal swelling site by the liner probe. The dimensions of the subcutaneous tissues and the deep muscle compartment were measured in the transverse plane. The thickness of the most swelling site was recorded and in the next 4 hours' interval. With an angle inferior to 60 degrees, the Doppler velocity tracing on the distal site of the bitten limb artery observes whether if there was diastolic retrograde arterial flow(DRAF).

**RESULTS:** Of the 22 patients (median age 48y [5-76y]; 16 males), nine patients bitten by *Protobothrops mucrosquamatus*, five patients bitten by *Trimeresurus stejnegeri* and other 6 patients were bitten by nonvenous snakes. The average amounts of antivenin were 9 vials for *P. mucrosquamatus* and 4.8 vials for *T. stejnegeri*. Emergent department (ED) stasis time were 30.9 hours for *P. mucrosquamatus* and 23.8 hours for *T. stejnegeri*. The soft tissue sonography showed fluid accumulated in the subcutaneous level in the patients bitten by *P. mucrosquamatus*. There was no DRAF noted in these patients. There was no patient bitten by *P. mucrosquamatus* or *T. stejnegeri* who receive faciotomy.

**CONCLUSION:** The sonography can provide objective evidences, including the location of edema and indirect intracompartmental pressure detection. Clinician can make better decision for snakebite patients based on the sonography.