

The Hand Patient: Human Bite

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Figure 1: The typical "fight-bite" with an injury to the MP joint. The wound does not seem to communicate with the MP joint, but this is an illusion since the injury occurred with the fingers flexed. All such wounds should be explored for chondral or osteo-



chondral fractures and thoroughly debrided.



Figure 2: The "amputation-bite" which should also be treated as an emergency with debridement and triple-antibiotic regime

Dear Colleague,

RE: Your patient with a fight-bite of the MP joint of his right index finger.

Thank you for the referral of Mr. SPN, a twenty seven year old male artisan who injured the knuckles of his right dominant hand during an argument at a party. This happened three days ago.

On **examination** he has a clear wound of about 2 x 3mm, just proximal to the meta-carpo-phalangeal joint of his middle finger on the dorsum of his hand (fig 1). The joint is swollen, tender and he is reluctant to move it. He feels feverish and his axial is tender.

Special investigations included an X-ray of the hand, which showed no abnormalities. The diagnosis is clearly a so-called "fight-bite". Our patient used his right dominant hand to punch the opponent in his mouth and in the process connected with the opponent's teeth, injuring himself. A mixed infection has ensued and the patient starts to develop systemic symptoms because of the bacteraemia.

The **management** is an emergency debridement of the wound. The wound needs to be explored into the MP joint of the middle finger. Although the wound is slightly proximal to the joint when he presented for examination, the wound happened with the fingers in full flexion. One needs to explore the joint making sure that the teeth of the opponent did not cause a chondral fracture. An osteo-chondral fracture is unlikely since the X-ray were clear. These fragments need to be removed, since they act as nuclei for infection. The crushed soft tissue needs to be excised and the wound irrigated with an antiseptic solution such as "Betadine". The wound needs to be left open with only a layer of paraffin gauzed and cotton swabs to cover it. The hand should be elevated immediately and hand baths instituted within twelve hours. These hand baths should be done at least two or three times per day with soap and water.

The patient needs to be covered by antibiotics. Since this is a mixed infection a penicillin for the Gram positive organism should be given, namely cloxacillin 500mg six hourly. For the Gram negative organisms an aminoglycoside such as gentamycin 80mg three times a day, intramuscularly would be ideal. For the anaerobic organisms the antibiotic of choice is metronidazole ("Flagyl") 400mg six hourly. Since this injury occurred three days ago, the chances of full recovery are likely. This of course will depend whether the patient will co-operate in terms of taking his antibiotics, keep the hand elevated, and do the prescribed mobilization exercises under the supervision of a qualified hand therapist.

DISCUSSION

The human-bite is one of the most septic bites. The reason is that the human teeth are blunt and cause a crushing injury. Coupled with this is that the human mouth is full of all kind of organisms. They include Gram negative, Gram positive organisms and anaerobic organisms. Since this infection is rapidly developing, a human bite is one of the emergencies in hand surgery. In a study which was performed involving one hundred human bites, the statistic showed that a neglected case older than five days inevitably ended in an amputation of a popularly finger. It has also been shown that once an infection gets established, the chance of involvement of the rest of the hand is a certainty.

Another form of human bite is seen more amongst females. This involves the outstretched finger, which is bitten off similar to biting off a piece from a carrot (fig 2). These wounds are obviously open and the chances for established infections are slightly less. However, this should also be treated as an emergency with the triple antibiotic regime, and full debridement.

The reason for the so-called triple regime antibiotic is that we have found that this combination is much more effective and cost containing as compared to an expensive wide spectrum antibiotic which are not as specific. In hundreds of cases we had good results with this simple regime. In those cases where there is a delay in rapid recovery regarding swelling and function gain, additional systemic conditions should be excluded such as diabetes, HIV/Aids, peripheral vascular disease and patients on immune suppressive drugs.

In summary, the human bite causes one of the severest infections because the wounds are occult, contain crushed tissue and contaminated by all-sorts of organisms. All human bites should be treated aggressively as an emergency.

With sincere regards
Ulrich Mennen