

Human Bite Injuries of the Hand at Sawanpracharak Hospital:

10 years of experience

Oprasertsawat P, MD

Department of Orthopaedics, Sawanpracharak Hospital, Nakhon Sawan, Thailand

Objective: To study patient characteristics, nature of injury, time to receive treatment, treatment procedure, and final outcome in patients with human bite injuries on the hand.

Methods: Retrospective, descriptive study in 45 patients with hand wounds from bites who were treated in Sawanpracharak Hospital from January 1st, 2000 to December 31st, 2009. Data was collected from medical records and presented by descriptive statistics. Patient characteristics and outcomes were compared between patients who received treatment within 48 hours and after 48 hours by Exact test and t-test.

Results: All patients were males, mean age 29.2±9.0 years. 84.4% of the lesions were on the right hand and 57.8% of lesions were at the MCP joint of the middle finger. Radiology found nine fractured metacarpal heads and one narrowing joint space. 55.5% had cellulitis, 37.8% had open joint injury, and 22.2% had tendon injury. 33.3% of wound cultures had *Streptococcus* spp. and 22.2% had *Staphylococcus* spp. Of the 21 patients who completed follow-up, 71.4% showed a good final function outcome. Patients who received treatment within 48 hours revealed fewer cellulitis (45.7% vs. 90.0%, $p = 0.027$), a lower average length of hospital stay (2.3 ± 1.5 vs 11.8 ± 8.7 , $p = 0.007$), and less joint stiffness (6.3% vs 100.0%, $p = 0.001$) than those who did not.

Conclusion: Time from injury to treatment and appropriate treatment were important factors in reducing complications.

Key words: Human bite injury, fight bite, clenched fist injury

The Thai Journal of Orthopaedic Surgery: 34 No.3-4: P30-36

Full text. e journal : <http://www.rcost.or.th/journal>, <http://thailand.digitaljournals.org/index.php/JRCOST>

Human bite injuries can be found in hospital emergency departments, but incidence rates may vary by location. In the U.S. the incidence rate is 11.8 per 100,000 population⁽¹⁾. In the UK the incidence rate is 45.1 per 100,000 population⁽²⁾. Hand injuries from human bites, also called fight bites or clenched fist injuries (CFI), usually lead to significant complications because the external wound may look like a small wound abrasion. Factors such as complex physiology of the injury, many bacteria in the saliva, the patient ignoring the wound, or the patient's failure to reveal the cause of injury^(2,3) make result in inappropriate treatment or late treatment, and 50% of cases develop deep tissue infections⁽⁴⁾. Complications such as joint stiffness that affect the function of the hand and chronic infection may lead to life-threatening diseases and/or require amputation.

Sawanpracharak Hospital is the regional hospital that received patients referred from neighboring provinces. Many patients with hand

injuries were sent to specialists. A previous study of human bite injury in Sawanpracharak Hospital was conducted over a period of 5 years, but there were a few patients, so its interpretation was limited⁽⁵⁾. This study covers a period of 10 years to cover more patients. Its objective was to study patient characteristics, nature of injury, time to receive treatment, treatment procedure, and treatment outcomes.

Material and method

This study is a retrospective, descriptive study. Its sample was patients with lesions of the hand who were treated at Sawanpracharak Hospital during January 1st, 2000 to December 31st, 2009. Information from the medical records was limited because the diagnosis usually did not identify the cause of the injury, and ICD - 10 coding system codes do not identify wounds from human bites. Thus, we searched the medical records for injuries to the hand from abrasion, contusion, superficial injury, open wound, traumatic wound infection, injuries, and other non-specific. We were able to identify 45 cases. Medical records were reviewed for gender, age, site of hand injury, location of the wound, duration from injury until treatment, radiographic evaluation, operative findings,

Correspondence to : Oprasertsawat P, Department of Orthopaedics, Sawanpracharak Hospital, Nakhon Sawan, Thailand
E-mail: prathano@hotmail.com

microbiological culture, antibiotics administration, cooperation in the treatment, and complications.

The data were analyzed by descriptive statistics for frequency, percentage, mean, standard deviation, median, and range. Patients were divided into two groups based on time from injury until treatment in the hospital⁽⁶⁾. Group 1 received treatment within 48 hours, and Group 2 received treatment after 48 hours. Patient characteristics, treatment results, and lengths of hospital stay between the two groups were compared by Exact test for frequency data and t-test for continuous data. A p value less than 0.05 was considered statistically significant.

Results

Forty-five patients had human bite injuries to the hand. All were males, aged between 13 and 62 years, mean age 29.2 ± 9.0 years. 24 patients were referred (53.3%). One case of wound was caused by incisor bite. The others were caused by clenched fist injury. 38 (84.4%) wounds were on the right hand. Forty-four lesions were found on the metacarpophalangeal (MCP) joint, 26 (57.8%) lesions were found on the 3rd MCP joint, 9 (20.0%) lesions were found on the 4th MCP joint, 5 (11.1%) lesions were found on the 2nd MCP joint, 4 (8.9%) lesions were found on the 5th MCP joint, and 1 (2.2%) lesion was found on the distal interphalangeal (DIP) joint of the index finger. The duration from injury to treatment in the hospital ranged from 1 hour to 14 days with a median of 24 hours.

Forty-two patients had radiography; 9 patients had fractured metacarpal head and a narrowing joint space in the third metacarpophalangeal joint, and no abnormalities were detected in the others. Forty-four patients were admitted, and the lengths of hospital stay ranged from 1 to 35 days with a median of 3 days. Forty-three patients had surgery. All operation included exploration, debridement, and lavage. Surgical findings revealed that 25 (55.5%) cases had cellulitis, 17 (37.8%) cases had open joint injury, and 10 (22.2%) cases had tendon injury.

Twenty-seven cultures from 26 patients were taken. *Streptococcus spp.* were isolated in 9 (33.3%) specimens, *Staphylococcus spp.* were isolated in 6 specimens (22.2%), and 11 (40.1%) specimens showed no growth. All patients received antibiotics. Oral antibiotics were given to one patient with an incisor bite as outpatient treatment which was received treatment within 48 hours. Intravenous antibiotics were given to the others. 66.7% were a combination of penicillins or cephalosporins with aminoglycosides, 24.4% were a combination of amoxicillins and clavulanic acid, and 8.9% were a combination of penicillins, aminoglycosides, and metronidazole. Twenty-one (46.7%) patients were completed follow-up, 13 (28.9%) patients were lost to follow-up, and 11 (24.4%) patients were lost before follow-up was complete. Of the 21 patients who completed follow-up, 15 (71.4%) patients achieved a full range of motion. The other 6 patients developed joint stiffness.

Table 1. Comparative features and outcomes of patients receiving treatment within 48 hours and after 48 hours

Data	Number who received treatment (%)		p value
	Within 48 hours	After 48 hours	
How they sought treatment			
By themselves	21 (60.0)	0	0.001
By the referral system	14 (40.0)	10 (100.0)	
Radiography results			
Fracture metacarpal bone or narrowing joint space	9 (28.1)	1* (10.0)	0.240
Normal	23 (71.9)	9 (90.0)	
Infection			
Cellulitis	16 (45.7)	9 (90.0)	0.027
No cellulitis	19 (54.3)	1 (10.0)	
Length of hospital stay (day)			
Mean (SD)	2.3 (1.5)	11.8 (8.7)	0.007
Outcomes **			
Joint stiffness	1 (6.3)	5 (100.0)	< 0.001
No stiffness	15 (93.8)	0	

* Patients who had narrowing joint space

** Patients who completed follow-up

Patients were into two groups according to the time from injury until treatment in the hospital. Those who received treatment within 48 hours sought treatment 60.0% more often than patients who received treatment after 48 hours. 45.7% of these developed cellulitis, their average length of hospital stay was 2.3 ± 1.5 days, and they had joint stiffness 6.3% less often than the patients who received treatment after 48 hours; these differences show statistical significance (Table 1).

Literature Review

Human bites were first reported in 1910 by Hultgen⁽⁷⁾, a case of “gangrenous paronychia” caused by a nail-biting habit in a seven-year-old girl. In 1911, Peter⁽⁸⁾ reported the first clenched fist injury, and in 1930, Mason and Koda⁽⁹⁾ reported the pathophysiology for spread of infection from clenched fist injury. After the initial inoculation of bacteria is subcutaneous spread, and then subaponeurotic abscess may develop and spread to the bone (osteomyelitis) or to the volar side of the hand to the lumbrical muscles and the flexor tendons (tenosynovitis). The infection may spread into midpalmar spaces, leading to serious infections of the hands. Clenched fist injuries cause severe infections due to several factors, including:

1. The MCP joint and the tendon are limited vascularized structures, and have limited ability to eradicate infection⁽³⁾.

2. The high concentration of pathogenic organisms in the human mouth. Human saliva contains as many as 50 species of bacteria with a concentration of 1×10^8 organisms per milliliter in normal subjects^(3,10,11), and up to 190 species in patients with gingivitis or periodontitis⁽¹²⁾.

3. Anatomically a finger in flexion or extension will be different (Fig. 1). A puncture laceration over the dorsum of the MCP joint in the flexed position frequently involves the extensor tendon, the joint capsule, the articular cartilage, and the metacarpal head. When the fingers are extended, overlying tissues retract proximally, in effect sealing off the wound. The deepest parts of the wounds are no longer connected with the external environment, creating an anaerobic environment which encourages rapid bacterial growth. These joint infections are very aggressive and rapidly destructive⁽³⁾.

Human bite wounds present frequently, but it is difficult to establish their true incidence. Marr *et al.*⁽¹⁾ reported a study with the largest number of patients, 892 human bites in 1979 in New York City, with an incidence rate of 11.8 per 100,000 population. In 2005, Wallace and Robertson⁽²⁾ reported an incidence rate of 45.1 human bite per 100,000 population. Many studies have believed that reported incidence rates are lower than the actual incidence because many

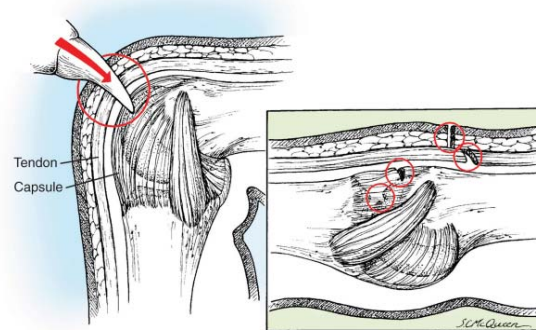


Fig. 1 Physiology of traumatic injury from a fist punching the teeth⁽²⁸⁾

patients do not seek treatment; reasons for this include prompt resolution of the bite injury, embarrassment, fear of legal repercussion, fear of hospital stay, and inadequate information about the origin of the lesion due to patient ignorance or drunkenness^(3,10,12,13).

All reports show that these injuries were more common in males than in females, because men are naturally aggressive. The age group in which they are most common is adults between 20 to 49 years^(1,3,10,12,14), most commonly in the dominant hand⁽¹²⁾. The second and third MCP joints are commonly involved, as they are most prominent on a fist^(6,12). These injuries penetrate the MCP joint in 52-65% of cases, cause tendon injury in 20% of cases, cause cartilage injury in 6% of cases, and cause bone injury in 17-58% of cases⁽¹⁵⁾.

Severity of infection depends on time that lapses between injury and treatment, and appropriateness of treatment also affects the incidence of complications in the patient. Many studies have reported risks for poor treatment outcome which include:

1. Emergency physicians may underestimate the lesions⁽³⁾, because the lesions are usually small (3-5 mm) and more shallow like minor injuries and due to lack of history of injury. Extending the wound in the emergency room is necessary. Patients must receive local anesthesia and hemostasis, there must be adequate lighting, the wound must be explored to improve visualization. The hand must be examined through the entire range of motion, to evaluate the potentially injured structure. Patients with injury to the joint or joint capsule, tendons, or deep spaces should be considered for hospitalization for intravenous antibiotics, and open debridement and irrigation in the operating room.

2. Initial treatment, such as primary closure and inappropriate antibiotics, results in aggressive infection⁽³⁾.

3. Most patients present late, 5 to 7 days after injury^(3,10) with an infected wound, swelling,

erythema, pain, and limited range of motion. Fever and lymphadenopathy may also be present⁽³⁾.

In a locally infected wound, pus forms within the MCP joint giving rise to septic arthritis, with chondrolysis of articular cartilage and subchondral bone destruction. When osteomyelitis and tenosynovitis are present, the infection is difficult to eradicate and leads to chronic stiffness and even amputation⁽¹⁶⁾. In later reports the amputation rate was reduced, because the antibiotics were more effective in preventing infection spreading to the bones and tendons⁽¹⁷⁾.

Various organisms that cause infections can result from aerobic and anaerobic microbial flora of the oral cavity rather than the victim's own skin flora^(14,15,19). Some reports have found anaerobes in more than two thirds of human bite wound infections, especially those with abscess formation⁽²⁰⁾. Aerobes and anaerobes were isolated from 54% of wound, aerobes alone were isolated from 44%, and anaerobes alone were isolated from 2%. Isolates included *Streptococcus anginosus* (52%), *Staphylococcus aureus* (30%), *Eikenella corrodens* (30%), and *Prevotella melaninogenica* (22%)⁽²¹⁾. Organisms isolated from diabetes patients are often gram negative organisms⁽¹¹⁾.

Most studies suggest radiographs should be considered in patients presenting with potential fight bite wounds. They are useful in revealing fractures, foreign bodies in wounds such as tooth fragments, air within a joint, and osteomyelitis^(10,11). One study recommended a "skyline view" of the metacarpal head to assessment intra-articular damage⁽²²⁾.

Many reports suggest outpatient management for uncomplicated wounds which are treated within 24 hours after injury. In outpatient therapy, more exploration of the wound in the emergency room is necessary. Even with no injuries of extensor tendons, joint capsule, articular cartilage, or bones, patients should return within 48 to 72 hours for a wound check^(10,12,17). Indications for hospitalization for surgery and parenteral antibiotics are penetration injury to the extensor tendon, cartilage, joint capsule, or bones; systemic manifestation of infection such as fever or lymphadenopathy; diabetes mellitus or peripheral vascular disease; immunocompromised by disease or drug; having received treatment after 24 hours; severe cellulitis; unable to come back for follow-up or noncompliance with antibiotics therapy; or outpatient therapy and not improved symptoms^(11,12,17). Human bite wound management should include debridement of necrotic tissue and contamination. Copious irrigation should be done with isotonic sodium chloride solution, diluted povidone-iodine, or diluted hydrogen peroxide. Cleansing is best performed with a 20-ml syringe with and an 18-gauge angiocatheter⁽¹²⁾. Many studies suggest allowing such wounds to heal by

secondary intention^(3,10-12,23). If the joint's capsule was not involved, the wound was drained with microirrigators and closed primarily⁽¹⁵⁾.

Splint immobilization and elevation can reduce pain and minimize edema in the affected area. The splinting in a position of function should be wrist joint dorsiflex 25 degrees, MCP joint flex 60 degrees, PIP joint flex 10 degrees, and DIP joint flex 5 degrees^(10,11). Early mobilization 48 - 72 hours post treatment should be considered to prevent joint stiffness⁽¹¹⁻¹³⁾.

Prophylactic antibiotic therapy is necessary in these patients. One small randomized prospective clinical trial reported an overall increase in infection rate of 47% in the uncomplicated wound placebo group compared with the antibiotic group⁽⁴⁾. In treatment of human bite wounds, all studies have recommended antibiotic prophylaxis^(11,14,24,25). However, if the injury occurred over 72 hours before treatment and there are no signs of infection, prophylactic antibiotic is probably not necessary⁽²⁴⁾.

The selection of appropriate antibiotics must be comprehensive and should cover all kinds of pathogens in the context of the clinical setting. The chosen antibiotic should cover Beta-lactamase producing aerobic and anaerobic organisms⁽²⁶⁾. Recommended intravenous antibiotic regimens for empiric treatment include:

- Amoxicillin-clavulanate 1 g each 6 hours^(3,10-12,14,17,21,23,25).
- Clindamycin in patients allergic to penicillin^(14,24).
- Doxycycline in patients allergic to penicillin, but not in children or in pregnant or lactating patients⁽¹²⁾.
- Ampicillin-sulbactam sodium 1.5 g each 6 hours⁽¹²⁾.
- Cefoxitin 2 g each 8 hours⁽¹²⁾.

First generation cefarospolins are not effective as monotherapy because some anaerobic bacteria and *E. corrodens* are resistant⁽¹¹⁾. The recommended antibiotic therapy is a seven-day course for prophylaxis⁽²⁴⁾. If cellulitis is already present, the recommended therapeutic course is 10-14 days, extended to 3 weeks for tenosynovitis, 4 weeks for septic arthritis, and 6 weeks for osteomyelitis. Intravenous therapy should be used until there is clinical improvement and C-reactive protein falls to less than 50 mg/L before changing to oral antibiotics⁽²³⁾.

Following a human bite, disease prevention must also be considered. For patients whose immunization schedule is unknown, the appropriate tetanus vaccine should be given^(10,23,24). Transmission of viruses such as hepatitis B, hepatitis C, and human immunodeficiency virus (HIV) are much less common⁽²⁴⁾. Hepatitis B immunoglobulin is indicated when the assailant is known to be hepatitis B sAg or eAg positive.

Hepatitis B vaccination should also be initiated in all patients when the assailant's status is unknown^(23,24). There is no recommended post-exposure prophylaxis for hepatitis C or HIV⁽²⁴⁾.

It is important that every laceration on the skin of the metacarpophalangeal joint is viewed as a suspected CFI until proven otherwise^(3,10,12,14). Appropriate management of early wound treatments can reduce complications.

Discussion

All of the patients in this study were male. This is the same as other studies, where the majority of bite patients were males^(1,3,10,12,14), because male patients are often aggressive. Some studies have reported bite injuries on females, but they were incisor bites rather than fist bites⁽⁶⁾. Patient age in this study averaged 29.3 ± 9.0 years and were mainly adults, which is similar to other studies^(3,10). This study showed 84.8% of the lesions were found on the right hand and 57.8% of the lesions involve the 3rd metacarpophalangeal joints. This is the most common location for clenched fist injuries^(6,10), probably because this knuckle is the most prominent when the fist is clenched, and it usually occurs on the dominant hand of patients⁽¹²⁾.

In this study, most patients received treatment within 48 hours (77.8%). 53.3% of the patients were referred for treatment. Early treatment in cutaneous injuries of the hand with a human bite is a key factor leading to good outcomes^(2,3,10). Many patients do not seek treatment due to prompt resolution of the minor injury. Others may attempt to conceal the source of their injury due to embarrassment, fear of hospitals, or fear of legal repercussions^(2,3). One study has asked a follow-up question for patients with cutaneous wounds who did not present a history of human bite, similar to "Could this wound have been caused by a bite or from someone's teeth? I am asking specifically since, as you may know, such wounds may have a higher risk of infection."⁽²⁾ A report form for human bites, if implemented at the emergency room in many hospitals, could lead to an adequate history⁽¹⁾. An approach with thoroughness and respect by the emergency physician in patients with a small wound at knuckle is another factor that will decrease significant complications, and following guidelines for treating human bites will increase the efficiency of the treatment^(24,27).

97.8% of the patients were admitted in the hospital for operation and intravenous antibiotics. Only one case was outpatient treatment; the patient received treatment within 48 hours for a small laceration at tip of the index finger from incisor bite, and he could not return for follow-up. We found that 55.5% of our patients presented with cellulitis, 37.8% with open joint injury, and 22.2% with tendon injury. This mirrors the experiences of other studies^(6,10). Patients who received treatment

after 48 hours had more cellulitis than the other group due to prolonged presence of organisms in the wound.

The organisms isolated coincided with past literature. The most commonly isolated organisms were *Streptococcus spp.*, then *Staphylococcus spp.*^(6,17). We did not find *Eikenella corrodens*, which was present in up to 30% of cases in other studies. We also found no anaerobes, unlike other studies,^(3, 7, 21) because of inadequate techniques for isolation and identification in the period covered. In our study, no bacterial growth was found in 40% of the patients. It is possible that our patients were prescribed antibiotics before cultures were obtained. In this study, antibiotic administration in the patients could cover both gram-positive and gram-negative organisms. We propose intravenous amoxicillin-clavulanic acid as the first line of defense and the broad spectrum antibiotic of choice, because many studies have found that it can cover common pathogens^(3,10-12,14,17,21,23,24).

The final functional outcomes in all patients could not be evaluated. Only 46.7% completed follow-up; of these, 71.4% had a good final functional outcome, similar to other studies⁽⁶⁾. Many cases were lost to follow-up before the functional result was known. It is an important factor in devising treatment plans for the management of injury. Instilling compliance remains a challenge to the physicians when dealing with these injuries.

Duration from injury until receiving treatment is an important factor in good outcome in this study. The patients who received treatment within 48 hours had less cellulitis, a shorter hospital stay, and better clinical outcome than the patients who received treatment after 48 hours. Early detection and early treatment are very important. Thus, it is important to inform the people in the community that, in cases of human bite wounds, they should seek treatment as soon as possible.

Conclusion

Hand injuries from human bites are complicated by very serious hand infections and must be treated adequately. Duration from injury until receiving treatment and appropriate management are important in reducing complications in the patients.

References

1. Marr JS, Beck AM, Lugo JA Jr. An epidemiologic study of the human bite. Public Health Rep. 1979; 94(6): 514-21.
2. Wallace CG, Robertson CE. Prospective audit of 106 consecutive human bite injuries: the importance of history taking. Emerg Med J. 2005; 22(12): 883-4.
3. Godoy D, Bonadeo G, Peralta H. Fight bite injuries. The Internet journal of emergency

- medicine [serial online]. 2003; 1(2): Available from: URL: <http://www.ispub.com/ostia/index.php?xmlFile Path=journals/ijem/vol1n2/bite.xml>. Accessed Aug 19, 2010.
4. Zubowics VN, Gravier M. Management of early human bites of the hand: a prospective randomized study. *Plast Reconstr Surg*. 1991; 88(1): 111-4.
 5. Oprasertsawat P. Human bite injury of the hand in Sawanpracharak Hospital. *Sawanpracharak Medical Journal*. 2008; 5(2): 881-90.
 6. Tonta K, Kimble FW. Human bites of the hand: the Tasmanian experience. *ANZ J Surg*. 2001; 71(8): 467-71.
 7. Hultgen JF. Partial gangrene of the left index finger caused by the symbiosis of the fusiform bacillus and the spirochaeta denticola. *JAMA*. 1910; 1: 857.
 8. Peters WH. Hand infection apparently due to bacillus fusiformis. *J Infect Dis*. 1911; 8: 455-62.
 9. Mason ML, Koch SL. Human bite infections of the hand. *Surg Gynecol Obstet*. 1930; 51: 591-625.
 10. Perron AD, Miller MD, Brady WJ. Orthopedic pitfalls in the ED: fight bite. *Am J Emerg Med*. 2002; 20(2): 114-7.
 11. Clark DC. Common acute hand infections. *Am Fam Physician*. 2003; 68(11): 2167-76.
 12. Revis Jr DR. Human bite infections. Available from: <http://www.emedicine.medscape.com/article/218901-overview>. Accessed Aug 19, 2010.
 13. Houshian S, Seyedipour S, Wedderkopp N. Epidemiology of bacterial hand infections. *Int J Infect Dis*. 2006; 10(4): 315-9.
 14. Barrett J, McNamara RM, Spanierman CS. Bites, human: treatment & medication [internet]. 2010 [updated 2010 Apr 8; cited 2010 Aug 19]. Available from: <http://www.emedicine.medscape.com/article/768978-overview>.
 15. Chadaev AP, Jukhtin VI, Butkevich AT. Treatment of infected clenched-fist human bite wounds in the area of metacarpophalangeal joints. *J Hand Surg Am*. 1996; 21(2): 299-303.
 16. Mennen U, Howells CJ. Human fight-bite injuries of the hand. *J Hand Surg Br*. 1991; 16(4): 431.
 17. Griego RD, Rosen T, Orengo IF, Wolf JE. Dog, cat and human bites: a review. *J Am Acad Dermatol* 1995; 33(6): 1019-29.
 18. Brook I. Management of human and animal bite wound infection: an overview. *Curr Infect Dis Rep*. 2009; 11(5): 389-95.
 19. Goon KYP, Mahmoud M, Rajaratnam V. Hand trauma pitfalls: A retrospective study of fight bites. *European Journal of Trauma and Emergency Surgery*. 2004; 34(2): 135-40.
 20. Brook I. Microbiology and management of human and animal bite wound infections. *Prim Care*. 2003; 30(1): 25-39.
 21. Talan DA, Abrahamian FM, Moran GJ, Citron DM, Tan JO, Goldstein EJ, *et al*. Clinical presentation and bacteriologic analysis of infected human bites in patients presenting to emergency departments. *Clin Infect Dis*. 2003; 37(11): 1481-9.
 22. Eyres KS, Allen TR. Skyline view of the metacarpal head in the assessment of human fight-bite injuries. *J Hand Surg Br*. 1993; 18(1): 43-4.
 23. Morgan M. Hospital management of animal and human bites. *J Hosp Infect*. 2005; 61(1): 1-10.
 24. Health protection agency north west. Guidelines for the management of human bite injuries [internet]. 2007 [cited 2010 Aug 19]. Available from: <http://www.hpa-nw.org.uk>.
 25. Stefanopoulos P, Karabouta Z, Bisbinas I, Georgiannos D, Karabouta I. Animal and human bites: evaluation and management. *Acta Orthop Belg*. 2004; 70(1): 1-10.
 26. Correia K. Managing dog, cat, and human bite wounds. *JAAPA*. 2003; 16(4): 28-32.
 27. Therapeutic guidelines. Antibiotic. 11st ed. Melbourne: Therapeutic Guidelines Limited; 2000.
 28. Wright PE. Hand infection. In: Canale ST, Beaty JH, editors. *Campbell's operative orthopaedics*. 10th ed. Philadelphia: Mosby Elsevier; 2003. p.4357.

ประสบการณ์ 10 ปี การรักษาบาดแผลที่มีมือจากถูกคนกัดในโรงพยาบาลสวรรค์ประชารักษ์

ประธาน โอปเรติวิสต์สวัสดิ์, พบ.

วัตถุประสงค์: เพื่อศึกษาลักษณะของผู้ป่วย ลักษณะการบาดเจ็บ ระยะเวลาในการเข้ารับการรักษา วิธีการรักษา และผลการรักษาในผู้ป่วยที่มีบาดแผลที่มีมือจากถูกคนกัด

วัสดุและวิธีการ: ศึกษาย้อนหลังแบบพรรณนา ในผู้ป่วยที่มีบาดแผลที่มีมือจากถูกคนกัดและเข้ารับการรักษา ตั้งแต่วันที่ 1 มกราคม 2543 ถึง วันที่ 31 ธันวาคม 2552 จำนวน 45 ราย รวบรวมข้อมูลจากเวชระเบียนของผู้ป่วยและนำเสนอโดยใช้สถิติพรรณนา เปรียบเทียบลักษณะของผู้ป่วย และผลการรักษาระหว่างผู้ป่วยที่เข้ารับการรักษาภายใน 48 ชั่วโมง และหลัง 48 ชั่วโมง ด้วยสถิติ Exact test และ t-test

ผลการศึกษา: ผู้ป่วยทั้งหมดเป็นเพศชาย อายุเฉลี่ย 29.2 ± 9.0 ปี พบบาดแผลในมือขวา ร้อยละ 84.4 ตำแหน่งบาดแผลพบที่โคนนิ้วกลาง ร้อยละ 57.8 ผลการถ่ายภาพรังสี พบกระดูกฝ่ามือหัก 9 ราย และพบช่องระหว่างข้อลดลง 1 ราย ผลการผ่าตัด พบมี cellulitis ร้อยละ 55.5 open joint injury ร้อยละ 37.8 และ tendon injury ร้อยละ 22.2 การเพาะเชื้อจากแผล พบเชื้อกลุ่ม Streptococcus spp. ร้อยละ 33.3 Staphylococcus spp. ร้อยละ 22.2 ผู้ป่วยมาตรวจตามนัด 21 ราย มีผลการรักษาดี สามารถกำมือแบมือได้ปกติ ร้อยละ 71.4 เมื่อเปรียบเทียบผู้ป่วยที่เข้ารับการรักษาภายใน 48 ชั่วโมง กับหลัง 48 ชั่วโมง พบมี cellulitis น้อยกว่า (ร้อยละ 45.7 เทียบกับ ร้อยละ 90.0, $P=0.027$) ระยะเวลาอนโรงพยาบาลเฉลี่ยน้อยกว่า (2.3 ± 1.5 เทียบกับ 11.8 ± 8.7 , $P=0.007$) และผลการรักษามีข้อนิ้วมือติดแข็งน้อยกว่า (ร้อยละ 6.3 เทียบกับ ร้อยละ 100.0, $P=0.001$)

สรุป: ระยะเวลาตั้งแต่เกิดบาดแผลจนเข้ารับการรักษาในโรงพยาบาล และการรักษาที่เหมาะสม มีความสำคัญที่จะลดภาวะแทรกซ้อนที่อาจเกิดขึ้นกับผู้ป่วย
