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GENERAL INFORMATION

Mammal bite management☆

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KEYWORDS
Mammal bites;
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Infection;
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Abstract
Background: Animal bites are a major public health problem, it is estimated that 2% of the population is bitten each year. Most bites are by dogs and the risk factors include young children, men, certain breeds of dogs and untrained dogs. The risk of infection after bites differs between animal species and depends on the animal teeth and oral flora.
Conclusions: Animal bites are still a major cause of morbidity in patients of all ages and have caused several preventable childhood deaths. These wounds often become infected. If the wound requires it, early surgical evaluation must be performed. The use of antibiotics is only recommended for high-risk bite wounds.

PALABRAS CLAVE
Mordeduras de mamífero;
Herida;
Infección;
Profilaxis antibiótica;
Tratamiento quirúrgico

Manejo de las mordeduras por mamíferos

Resumen
Antecedentes: Las mordeduras de animales son un problema importante de salud pública: se estima que el 2% de la población es mordida cada año. La mayoría de las mordeduras son de perro y los factores de riesgo incluyen niños pequeños, hombres, ciertas razas de perros y perros no adiestrados. El riesgo de infección posterior a las mordeduras difiere entre las especies animales y depende de la dentición de los animales y de la flora oral.
Conclusiones: Las mordeduras de animales siguen siendo una causa importante de morbilidad en pacientes de todas las edades y han causado varias muertes infantiles prevenibles. Estas

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heridas comúnmente se infectan. Si la herida lo requiere, se debe realizar valoración quirúrgica temprana. El uso de antibióticos solo se recomienda para las heridas por mordedura de alto riesgo.

Background

Animal bites are a major public health problem: it is estimated that 2% of the population is bitten every year. The majority of bites are by dogs, and the risk factors include small children, men, certain breeds of dog and untrained dogs. The risk of infection following a bite differs between animal species and depends on their teeth and oral flora.

It has been estimated that dog bites represent 60–90% of all bites, while those by cats amount to 5–20% and those by human beings 4–23% of the total. Mammal bites account for almost 1% of visits to A&E facilities in the United States.[1] The annual medical cost of treating these lesions is more than 100 million dollars.[2]

Studies have found that human bites are more common among men and peak in incidence between the ages of 18 and 78 years old (median: 28 years old). A study of 388 patients with bites by humans found that more than half of them (50.3%) had been bitten on the hands or fingers, 23.5% in an extremity and 17.8% in the head or neck.[3] The majority of patients (76.2%) visited an A&E department within 12 h. of the injury occurring. Although the majority of patients (77.3%) were given antibiotics, 11.1% were admitted to hospital. Patients with bite injuries are often under the toxic effects of alcohol, so that the process of obtaining a trustworthy description of the incident and performing a detailed examination is often difficult. These patients are often reluctant to admit the cause of their injury and offer untrue descriptions. The rate of infection after a human bite stands at approximately 10%.[4]

Microbiology of the flora isolated in the bites of different mammals

Dogs: *Pasteurella dagmatis*, *P. canis*, *Staphylococcus aureus*, *S. intermedius*, *Streptococci*, *Moroxella* spp., *Neisseria* spp., *Capnocytophaga canimorsus*, *Clostridium* spp., including *Clostridium tetani*, *Anaerobios* spp.[5].

Cats: *Pasteurella multocida*, mixed aerobic and anaerobic organisms.[6]

Rodents: *Streptobacillus moniliformis*, *Spirillum minus*, *Salmonella* spp.[7]

Cows, horses and camels: polymicrobial, *Actinobacillus* spp.[8]

Pigs: polymicrobial, *Actinobacillus* spp.[9]

Humans: *Viridans streptococci*, *S. pyogenes*, *S. aureus*, *Anaerobes*, *Eikenella corrodens*, hepatitis B and C, human immunodeficiency virus.[10]

Monkeys: Mixed aerobic and anaerobic, *Streptococci*, *Neisseria* spp., *Haemophilus influenzae*, *Herpes simiae* (B virus).[11]

Clinical symptoms

Dog bite

Children under the age of 5 are at the highest risk of suffering a dog bite, which is often on the face, while adults tend to be bitten on the upper limbs. The majority of dog bites in men occur when the animal is free (wandering). 66% of bite victims are the dog's owner or know the dog, and approximately half of the dogs are provoked.[12] A study of attacks by dogs in Adelaide found that 3/4 of them were caused by 5 of the 160 breeds there, in spite of the fact they only represent 31% of the dog population. German shepherd dogs, Pit bull terriers, blue/red Australian Cattle Dogs, Dobermans and Rottweillers were 4 or 5 times more likely to bite than other breeds. It is important not to solely blame these breeds: training as well as castration may also play a role here.[13] Up to 18% of dog bites become infected.[14,15]

The results revealed a far broader range of organisms than had been thought, and more organisms were isolated in a reference laboratory than in the usual hospital laboratory. An average of 5 organisms were isolated, most usually a mix of aerobic and anaerobic ones. Species of *Pasteurella* were isolated in 50% of dog bites: this is an important finding, given that this organism had been thought to be rare in cases of dog bite.[5]

Cat bite

Cats have long thin incisors which almost always cause puncture wounds. Although these may seem minor on the surface of the skin, they may penetrate deeply and puncture the bone marrow, joints or tendons. These wounds are difficult to debride and disinfect, and this is particularly important in the hand, where doctors may easily overlook joint penetration. From 28% to 80% of cat bites become infected.[6]

Talan et al.[5] observed the microbiology of 57 cat bites and found *Pasteurella multocida* in 75% of them. *Pasteurella multocida* is characteristically located on the skin, and infection of the soft tissues develops swiftly, with or without systemic effects. *Pasteurella* is the predominant organism in the oral flora of many species, and interestingly some animals use *Pasteurella* to hunt in nature: they injure their