

Case Report

## Dog bite to the external genitals: A Series of Six Clinical Cases

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### Summary

Animal bites of the scrotum and penis are rare, but potentially serious, affecting mainly children and adolescents. About six cases, we discuss their management. This is a prospective study over three years from May 2016 to May 2019. Management was surgical, probabilistic antibiotic therapy as well as an anti-rabies and tetanus vaccine must be undertaken without delay.

### Introduction

Animal bites of the scrotum are rare, but potentially serious, affecting mostly children and adolescents. We discuss the management of six cases. An exploration in the emergency operating theatre allows an assessment of the affected structures, their surroundings and their repairs. Antibiotics, anti-tetanus and rabies treatment was indicated in all cases. Morbidity is related to the severity of the bite, and the time required for consultation.

### Materials and Methods

It is a prospective study over three years from May 2016 to May 2019.

We have included in our study all the patients that we received during the on-call of our Urology team. We collected six cases.

### Results

#### Clinical Case 1: (Figure 1 Spongy body lesion)

We report the observation of a 23-year-old patient, without any particular pathological history, who consulted the emergency room in the immediate aftermath of an assault by a Staffordshire Bull Terrier dog with a genital bite. The clinical examination found two scrotal wounds of 1 cm and 2 cm, with a lesion of the ventral face of the penis of 1 cm, without loss of skin substance. The patient was in good general condition, and did not report urethrorrhagia.

Emergency exploration revealed superficial scrotal lesions, and the necrotic margins were excised, trimmed with antiseptic and sutures. The lesion at the penile shaft was explored, showing a hematoma of the evacuated envelopes and a rupture of the spongy body surrounding the distal penile urethra, which was sutured after insertion of a bladder catheter. Antibiotic therapy with amoxicillin plus clavulanic acid, cyclin and metronidazole was given. The patient received tetanus serum and rabies vaccination; the vaccination status of the dog is not known.



Figure 1: Spongy body lesion

#### Clinical Case 2: (Figure 2 Inguinal lesion)

This is a 24-year-old patient, with no particular pathological history, admitted to the emergency room for trauma to the base of the penis following a bite by a stray dog. The examination found a superficial lesion at the base of the penis of 4 cm linear length reaching to the groin. One, the wound was sutured, and antibiotic therapy with amoxicillin plus clavulanic acid and metronidazole was performed. A rabies vaccination and a tetanus serum were administered.



Figure 2: Lesion at the base of the penis of 4 cm linear length reaching to the groin

**Clinical Case 3: (Figure 3 Scrotal wound)**

A 21-year-old boy, admitted to the emergency room for an assault by a bitch that occurred less than two hours ago, the exploration finds a partially externalized testicle, the albuginea is not ruptured. A suture of the envelopes was performed with intra-scrotal fixation of the testicle. Antibiotic therapy based on amoxicillin plus clavulanic acid, cyclin and metronidazole was prescribed. An anti-rabies vaccination and a tetanus serum were administered.



Figure 3: Scrotal wound

**Clinical Case 4: (Figure 4 Bite of the glans penis)**

A 19-year-old boy who presents one hour after a dog bite, while playing football, the lesion check-up found traces of canine teeth on the ventral face of the glans of the penis and a bruise around them, the patient did not report dysuria or urethralgia. Serum lavage and disinfection with povidone-iodine was performed, antibiotic therapy (protected amoxicillin, cyclin and metronidazole) was prescribed with tetanus serum and the patient was referred to the anti-rabies center.



Figure 4: Bite of the glans penis

**Clinical Case 5: (Figure 5 Scrotal Injury)**

A 25-year-old male, who had been consulting for an unvaccinated domestic dog bite for less than an hour, was found with a lacerated scrotal bite on the lateral aspect of the left scrotum, exposing the testicle. Surgical trimming was performed with disinfection and serum washing. The patient received tetanus serum and antibiotic therapy with amoxicillin plus clavulanic acid, doxycycline and metronidazole, the patient was referred to the rabies centre where he received the vaccination and rabies serum.



Figure 5: Scrotal injury

**Clinical Case 6: (Figure 6 Dog bite)**

A 20-year-old man who consulted for an assault by an unknown dog, clinical examination found superficial lesions on the right scrotum, disinfection was carried out with stitches, the patient received tetanus serum and antibiotic therapy based on amoxicillin plus clavulanic acid was started. The patient was referred to the anti-rabies center.

All our patients were followed up on an outpatient basis without the need for further surgery, prophylactic antibiotic therapy was continued for seven to ten days, no complications arose, and the patients recovered with good aesthetic and functional results.



Figure 6: Superficial lesions on the right scrotum.

**Discussion**

Many animals are responsible for bites in humans, in particular dogs and snakes, but also cattle, goats, horses, camels and donkeys.

Emergency room admissions for dog bites to external genitalia are not frequent in our center and mainly affect a young population. According to our reference center for rabies control: Pasteur Institute of Casablanca, 9% of dog bites occur in the richly vascularized organs (head, neck, trunk and genitals) [1]. An animal bite carries a triple risk of infection: bacterial, tetanus and rabies. The cases reported in the international literature are often the most spectacular: amputation, extensive necrosis, loss of a testicle.

Dogs are well known to be attracted to the perineal area not only of other dogs, but also of other species, the reason for this attraction could be the coprophagy of the dogs. Dogs are attracted to the perineum and genitals in poorly dressed, defenseless or immobilized subjects. The dog's interest in the external genitalia is not only due to the appendix of the tissues in males as there are reported cases of dog bites to the external genitalia in females.

Presumed penetrating lesions of the scrotum and penis should always be explored surgically on an emergency basis. This exploration makes it possible to assess the affected intra-scrotal structures, the corpus cavernosum and the corpus spongiosum. The notion of urethrorrhagia should be sought after the bite. In the operating theatre, cleaning is carried out with a broad-spectrum antiseptic, followed by excision of the devitalized banks and drainage if necessary. Suturing of the testicular albuginea, corpora cavernosa or spongy body is sometimes necessary. In case of amputation of the penis or loss of a testicle, a double psychological and urological care is indispensable.

Clean lesions, seen early and without significant loss of substance can be closed at once. Lesions seen late, infected or with loss of substance should not be closed at once. Wound management includes thorough irrigation and debridement of the wound, broad-spectrum antibiotics, addition of rabies and tetanus prophylaxis. Penile skin lesions may require skin flaps. Coverage by directed wound healing or skin grafting may be performed. The lesions rarely become complicated by extensive gangrene or toxic shock. Treatment options for emasculation include hormone replacement, penile reconstruction or sex change. Delay in presentation and tissue loss is directly proportional to the rate of infection and inversely proportional to the outcome [2].

Dog bites can harbor potential pathogens, but only 15-20% of dog bite wounds will become infected. Most infected dog bite wounds produce polymicrobial organisms. *Pasteurella* species was the most common isolate, followed by anaerobic organisms. *Pasteurella Multicide* and *Staphylococcus aureus* are the most common aerobic organisms, occurring in 20-30% of infected dog bite wounds. Anaerobic organisms have also been implicated in bites from infected dogs. (*Bacteroides fragilis*, *Fuso-bacterial* species and *Villanella Parvula*). It is generally accepted that a superficial, easily cleaned dog bite wound will not require antibiotics if the patient is otherwise immunocompetent [3].

Although antibiotics have not been clearly shown to prevent infection after an animal bite, most physicians suggest antibiotic prophylaxis for moderate to severe injuries, such as bites to the hand, head, neck and genital area .

Treatment with prophylactic antibiotics for three to seven days is appropriate for dog bite wounds, unless the risk of infection is low or the wound is superficial. If frank cellulitis is evident, treatment for 10 to 14 days is more appropriate. Amoxicillin-clavulanic acid is the antibiotic of choice for a dog bite. In case of allergy to penicillin, doxycycline is an acceptable alternative. Erythromycin can also be used, but the risk of treatment failure is higher due to antimicrobial resistance. Other acceptable combinations include clindamycin and a fluoroquinolone in adults or clindamycin and trimethoprim-sulfamethoxazole in children. When compliance is a concern, intramuscular ceftriaxone injections may be used [4].

Rabies vaccination is carried out in the following two cases:

- Pre-exposure vaccination: to protect people who may be exposed to rabies, this vaccination is done for those at risk.

- Post-exposure prophylaxis: to prevent disease in people who have been exposed, usually after being bitten by an animal suspected of having rabies.

The vaccines used for vaccination before and after exposure are the same, only the administration protocol changes depending on the application.

Rabies prevention in our five patients will be done according to WHO recommendations, according to the Zagreb 2-1-1 protocol, which includes two injections of vaccine on day 0, one in each deltoid, then one injection on days 7 and 21. When indicated, rabies immunoglobulins should be given at the same time as the first injection of vaccine (D0), at a different injection site. The genital area is considered to be a bite site at risk (Category III), this category is defined by single or multiple bites or scratches through the dermis, contamination of mucous membranes or eroded skin with saliva after licking by an animal, exposure through direct contact with bats (severe exposure). Vaccination should not be interrupted unless the status of the animal permits. Rabies immunoglobulins must be administered at D0 in combination with the vaccine in case of Category III exposure [5].

All of our patients were sent to our referral rabies center, and they have been following their vaccinations and rabies serum. In our six cases, the vaccination status of the biting dog was unknown or unvaccinated, and the dogs were not put under veterinary supervision, because in five cases the stray animal was not captured, and in the other where the owner was known, he could not be reached.

## Conclusion

Dog bites to the external genitalia are rare, their management is surgical in emergency, a probabilistic antibiotic therapy as well as anti-rabies and tetanus treatment must be undertaken without delay.

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