Human bites of the face
Early surgical management

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Summary
A prospective study was done on 72 cases of human bites of the face. Forty-four patients were found suitable for early surgery, which was performed under antibiotic cover within 5 days after injury. In 35 of the 44 cases antibiotics were started within the first 24 hours (group I) and the results are compared with similar studies. Further comparison is made with 9 patients (20%) (groups II and III) who arrived at hospital late and so did not receive antibiotics until over 24 hours after the bite, although surgery was still performed within the first 5 days. Infection rates were low in all three groups. Wounds were closed directly or definitive surgery done with the use of local flaps or skin grafts. No problems were experienced with these procedures.

Patients and methods
A human bite was considered to be one inflicted on one person by another, and excluded self-inflicted bites of the tongue and lower lip, as proposed by Tomasetti et al. Only bites of the facial region, i.e. forehead, eyes, ears, nose, cheeks, lips, tongue, submandibular region and chin were included.

During the period May 1985 - November 1986 72 patients with human bites of the face were seen at Cecilia Makiwane Hospital. The ages ranged from 16 to 50 years (mean 25 years). This compares very closely with the findings of Early and Bardsley who reported that early flap design permits primary closure of heavily contaminated wounds.

The patients were managed as follows:
1. All patients were admitted to hospital and were not discharged before the 5th postoperative day so that wounds could be assessed daily for signs of infection.
2. On admission to hospital wounds were cleaned with chlorhexidine and dressed with povidone iodine ointment.
3. A combination of ampicillin 250 mg and cloxacillin 250 mg (Ampiclox 500; Beecham) was given orally 6-hourly, and continued until the 5th postoperative day in cases where surgery was carried out in the first 5 days. Human bites of the face are potentially heavily contaminated and many organisms can be cultured from these wounds. Goldstein et al. recommended penicillin and a penicillinase-resistant penicillin or cephalosporin as initial therapy, depending on culture results.
4. Lavage of the oral cavity with an antiseptic mouth wash 4 times daily was prescribed in cases where the oral mucosa was involved.
5. Surgical closure of the wound was done as early as circumstances allowed.

Wounds were thoroughly irrigated with a povidone iodine solution and good surgical debridement achieved without sacrificing tissue unnecessarily. This was followed by primary closure. Where primary closure could not be achieved because of avulsed tissue, the defects were closed with various early flap designs or Wolfe grafts. The aim was to do a definitive single-stage procedure or, where this was not possible, to commence with the first stage of a reconstructive procedure, e.g. Abbé rotation flap or post-auricular advancement flap.

All clinical information was obtained and all surgical procedures and follow-up were done by the author.

Human bites of the face are serious injuries. Not only is the potential for infection always present but these wounds may result in gross disfigurement. The main objectives in the management are prevention of infection and functional closure of the wound with the best possible cosmetic result.

Iregbulu states: 'Human bites of the lip are potentially heavily contaminated, and we believe there is no place for primary closure of such a wound, even if possible and if the patient presents early.' In their review of human bites of the face, Early and Bardsley cite three other studies advocating the use of antibiotics and primary repair of these wounds. Tomasetti et al. reported that in their series of 25 bites no infection resulted when prophylactic antibiotics and kanamycin soaks were started within 24 hours followed by debridement and closure of the wound. Where primary closure was impossible because of large defects and avulsed tissue, a split thickness skin graft was obtained and placed over the defect. Burton et al. managed the wounds in their series by thorough scrubbing, irrigation and debridement followed by primary closure, and split thickness skin grafting for large defects if the injury was in an early stage and free of infection. They also reported that early flap design permits primary closure of many wounds that previously required skin grafts. Antibiotic therapy was started without delay in all cases.

In our experience patients with human bites of the face often delayed seeking treatment — possibly because of the long distance they had to travel to this hospital or owing to embarrassment or because some of the wounds initially seemed innocuous. Our regimen included antibiotic treatment on admission, followed by early surgical closure of the wound.

A prospective study was undertaken to:
(i) compare results with other similar studies with regard to the incidence of infection where antibiotics were started within the first 24 hours and surgical closure of the wounds was done early (group I);
(ii) compare group I with patients who delayed seeking treatment and in whom antibiotic administration was started after the first 24 hours, followed by early surgery (groups II and III); and
(iii) do early definitive surgery, including early flap designs, V- or W-excisions, Wolfe grafts, etc., to avoid subsequent surgical procedures and thus further admissions and prolonged stays in hospital.
Results

The wounds were often associated with crushing of the wound edges and subcutaneous tissue and secondary tears in the vicinity of the wounds, e.g. intra-oral mucosal tears with lip injuries and post-auricular skin tears with ear wounds. Wounds on flat surfaces, e.g. cheeks and forehead, often had small tears and abrasions in the surrounding skin. These injuries probably resulted from crushing of the teeth and the pulling action of the assailant as well as the counter-pulling by the victim. In this series 33 patients (45.8%) had no tissue loss and 39 (54.2%) had tissue loss (skin only in 11 patients (15.3%) and skin and subcutaneous tissue in 28 (38.9%)).

The lower lip was found to be the most commonly involved area of the head in human-bite wounds, followed by the ear, cheek, nose and upper lip (Fig. 1).

The management of wounds is set out in Table I. Forty-four patients were operated on within the first 5 days.

Table II shows the time which elapsed between injury and the start of antibiotic treatment and time lapse from injury to surgery.

Forty-two of the 44 wounds described in Table II showed no signs of inflammation or infection in the postoperative period and the patients were discharged after the 5th postoperative day. Follow-up was done on an outpatient basis until the wounds were fully healed.

One patient showed signs of inflammation, i.e. slight oedema and redness on the tip of a flap on the 2nd and 3rd postoperative days. The inflammation settled without any additional treatment. This patient had 2 x 2 cm full thickness skin loss on the left cheek which was repaired with a rotation flap.

One patient developed overt infection on the 2nd postoperative day with pus draining from the wound and partial dehiscence. The original wound was a lower lip bite with loss of one-third of the width of the lower lip involving skin mucosa and muscle. The wound was closed with a V-excision and primary closure.

Discussion

The excellent blood supply of the face and the use of antibiotics and early surgical repair, make infection of human bites of the
face a rare occurrence, even when patients seek help at a relatively late stage.

The anatomical site of the wounds described is similar to the findings of Tomasetti et al. who reported the incidence in their series to be lip 32%, ear 24%, eyelid 16%, nose 12% and cheek 11%. Losken and Auchinclossreported good results with conservative management of bite wounds with lip loss of less than 10 mm. This correlates with the outcome of the 4 patients in this series with similar wounds who were treated conservatively.

Thirty-five (79.5%) of the 44 patients who were operated on in the first 5 days had antibiotics administered within the first 24 hours (Table II). One patient in group I developed overt infection and partial dehiscence of the wound and 1 had signs of inflammation which settled without additional treatment. These findings correlate well with those of Early and Bardsley who reported 1 patient who developed infection in their series of 41 patients. All these wounds were treated with antibiotics and early surgery.

Tomasetti et al. reported on a series of 25 human bites of the face. No infection resulted in any of the patients who were managed within 24 hours by debridement, antibiotic cover and kanamycin soaks. These low rates of infection show clearly that early repair under antibiotic cover is a safe procedure with all the advantages of short hospital stay, low morbidity and good cosmetic results.

No signs of inflammation or infection developed in the group of patients (groups II and III) in whom antibiotic cover was started after the first 24 hours (9 of the 44 patients, i.e. 20.5% of cases). The author feels that if patients with human bite wounds of the face arrive at hospital more than 24 hours after injury, although not ideal, surgery under antibiotic cover is a safe procedure with all the advantages of short hospital stay, low morbidity and good cosmetic results.

Thirty-nine (54.2%) of the total of 72 patients suffered tissue loss from their wounds. Of the 44 patients who were operated on within the first 5 days, 24 (54.5%) had tissue loss. At surgery all wounds were closed directly or, if necessary, flaps were designed; full thickness and in 1 case split thickness grafts were used for closure as a primary procedure. Thirty-nine of the 44 patients (88.5%) had single-stage definitive procedures and needed no further surgery. Five patients (11.5%) to be re-admitted after 2 - 3 weeks for division of flap pedicles and no further procedures were necessary. No problems were experienced with these procedures. Burton et al. Losken and Auchincloss and Neiva reported good results where human bites of the face were repaired with early flap design. Early flap designs permit primary closure of many wounds that previously required skin grafts and which required patients to be readmitted to hospital for subsequent reconstructive surgery.

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REFERENCES