



# Surgical delay in the management of dog bite injuries in children, does it increase the risk of infection? ☆

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Received 4 June 2004; accepted 17 May 2005

## KEYWORDS

Dog bites;  
NCEPOD guidelines;  
Delayed surgery;  
Infection rate

**Summary** Dog bites are contaminated wounds and convention dictates that any surgical treatment should be performed at the earliest opportunity. This practice, however, may be in direct conflict with NCEPOD guidelines to reduce night time operating. We audited our treatment of dog bite injuries in children over a 5-year period (1998-2002) to determine whether delaying surgery to conform to operating guidelines increased the incidence of infection.

A retrospective case note study identified 118 patients admitted to Sheffield Children's Hospital with dog bite injuries. Details of their injury, treatment and outcome were recorded. There were 70 males and 48 females and an average age of 6.6 years (range 1-15 years). The most common type of injury was a single laceration (32%) and the most frequent site of injury was the face (59%). The majority of wounds (68%) were cleaned and dressed before theatre and 89% were closed directly after minimal debridement. All patients received prophylactic antibiotics. Of the 114 patients that required surgery, 57 (50%) were operated on within 12 h of their injury and 57 (50%) after 12 h. There were three cases of infection in the early group (<12 h) and none in the delayed group (>12 h).

We suggest that delaying the surgical treatment of dog bites in children to avoid operating at night does not increase the infection rate.

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\* Presented at the Winter Meeting of the British Association of Plastic Surgeons, London, UK, December 2003.

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Dog bites are relatively common injuries. Incidence varies from 174 to 720 per 100 000 per year and as many as 75% of those attacked are children.<sup>1-3</sup> Current opinion advocates early surgical treatment with irrigation of the wound, minimal debridement and direct closure where possible.<sup>1,4-8</sup> Many hospitals in the United Kingdom have developed

guidelines to prioritise emergency surgery and reduce 'out-of-hours' operating. These guidelines have evolved from the reports and recommendations of the National Confidential Enquiry into Perioperative Deaths, now known as the National Confidential Enquiry into Patient Outcomes and Deaths, which was originally published in 1997 and subsequently revised in November 2003.<sup>9</sup>

We conducted a study to determine if delaying the surgical treatment of dog bites in children to conform to local operating guidelines resulted in an increased rate of infection.

## Methodology

A retrospective case note analysis was performed from 1998 to 2002. Clinical coding identified all patients with a dog bite injury admitted under the care of the Plastic Surgery Department at the Sheffield's Children Hospital. This was cross-referenced against casualty admission records and theatre logbooks. We looked at the following:

- Patient demographics: age, sex, referral source and the location of attack.
- Injury demographics: site, type and number of injuries.
- Treatment details: pre-operative interventions, grade of surgeon and procedure.
- Infection rate.

## Results

We identified 122 patients. Notes were obtained for 118, giving a retrieval rate of 97%. There was a

steady rise in the number of admissions during the study period from 19 in 1998 to 30 in 2002 (Fig. 1).

## Patient demographics

Sixty-one patients (52%) were referred from the casualty department of Sheffield Children's Hospital and the 57 (48%) from peripheral units. The male to female ratio was 1.4:1 with a mean age of 6.6 years. Attacks peaked in the summer months (36%) and were least common in the winter months. In 68% of cases the attacks occurred at home and in 99% of cases by a single dog. Seventy-five percent of the dogs were pets and in 66% of cases the dogs were known to the child. There were three cases of provoked attack; the child teasing the dog with food, the child pulling the dog's ear and the child pulling the dog's lead. In cases where the breed of the dog was recorded, the most common was the Alsatian (18%), closely followed by the Japanese Akita and Rotweiler (16%).

## Injury demographics

The average number of injuries per child was three (range 1-18). The type and distribution of injuries are listed in Tables 1 and 2. The most common injury pattern was the single laceration (32%). For facial injuries the mostly frequently affected area was the middle third of the face (55%). There were no fatalities.

## Treatment details

Seventy-three percent of patients were admitted within 6 h of injury and 87% within 12 h. Three cases were referred from casualty clinics and admitted after a delay of more than 24 h. Sixty-eight percent

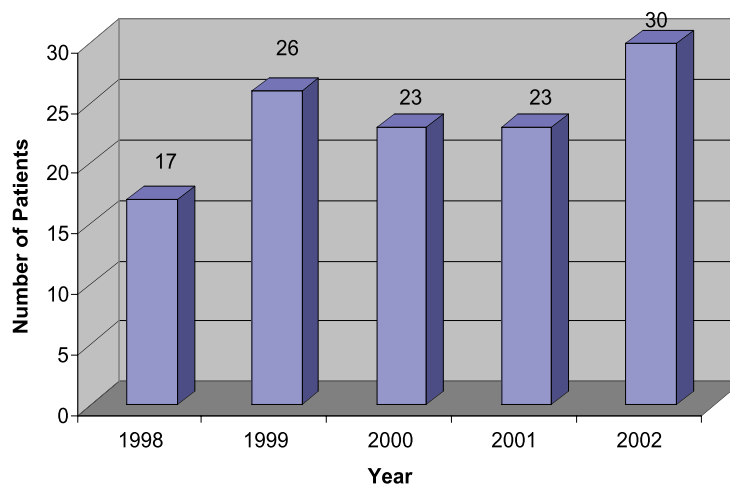


Figure 1 The number of patients admitted with dog bite injuries each year.

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