

Nasal manipulation with intravenous sedation. Is it an acceptable and effective treatment?*

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SUMMARY

Local anaesthesia is increasingly being used for nasal manipulation. Doubt remains over the discomfort associated with this procedure. We studied in a prospective manner, the acceptability and effectiveness of nasal manipulation with intravenous sedation and local anaesthesia, in a case series of thirty-five patients. Patients used linear analogue scales to assess outcome and pain associated with the procedure. More than half of the patients (60%) returned pain scores of only 1 out of 10. Thirty-two patients (90%) found the procedure less painful than receiving a tooth filling from the dentist, while thirty-four patients (97%) said they would undergo the same procedure again if they re-fractured their nose. The effectiveness of the treatment as assessed by an independent observer revealed that 90% of patients had achieved a significant reduction in their deformity ($P=1.27 \times 10^{-9}$).

Key words: nose injury, surgery, sedation

INTRODUCTION

Nasal bone fracture is the most common facial bone injury encountered in clinical practice (Schuller and Schlegel, 1994). In recent years closed manipulation of these injuries is increasingly being performed under local rather than general anaesthesia (Cook et al., 1990; Watson et al., 1988).

The procedure under local anaesthesia is safe and resource efficient provided significant trauma to the nasal septum has been excluded (Cook et al., 1990; Crowther and O'Donohue, 1987). Further, the cosmetic outcome following manipulation under local anaesthesia compares favorably with that achieved under general anaesthesia (Cook et al., 1990; Watson et al., 1988; Waldron et al., 1989).

Some doubt does exist over patient acceptability of the local anaesthetic technique, which at times can be associated with considerable pain and discomfort. Two recent studies (Cook et al., 1992 and Owen et al., 1992); have shown that the skin injections are often more painful than the procedure itself. In one study half of the patients were noted to have pain scores of 3/5 or more as a result of the local anaesthetic injection alone. It is worthy of note that similar local anaesthetic procedures such as closed joint manipulation and upper GI endoscopy would normally be performed with intravenous sedation, and these procedures are known to have a high level of patient acceptability (Al-Atrakchi,

1989 and Lee et al., 1989). Our view was that for the nasal manipulation to be considered a viable alternative to the general anaesthetic procedure it should offer a similar level of patient acceptability.

We set out to examine patient acceptability of the technique of intravenous sedation prior to infiltration of local anaesthetic by prospective assessment of a case series of 35 consecutive patients suffering nasal bone fractures.

MATERIAL AND METHODS

Patients presenting with nasal bone fracture requiring manipulation between October 1996 to January 1997 were entered into the study. Patients with fractures more than 2 weeks old and those less than 14 years of age were excluded. Patients suffering significant septal deformity and those refusing a local anaesthetic procedure were also excluded. Informed consent was obtained following clear explanation. All patients were admitted as day cases and had their procedure performed in an operating theatre. All procedures were performed by one senior house officer with consultant supervision. After establishing intravenous access each patient was given 5 nasal insufflations of co-phenylcaine-forte (5% lignocaine with 0.5% phenylephrine) in each nostril. Monitoring by pulse oximetry and ECG occurred in each case. Intravenous sedation using midazolam was given,

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with dose depending on patient age and size (usually giving 6-8 mg initially). Further intranasal local anaesthesia was established using 3-4 ml of 1:80000 adrenaline/2% xylocaine in a dental syringe injecting through the intercartilaginous line, and producing local block of appropriate branches of the infraorbital, infratrochlear and external nasal nerves. In addition, internal nasal branches of the anterior ethmoidal nerves were blocked by infiltrating the high anterior septum and the lateral wall under each nasal bone. This internal block, allowed for any depressed fractures to be elevated using an internal instrument lifting technique. Repeat midazolam was administered if required depending on the response to local anaesthesia, [maximum total dose used 20 mg, but generally a dose of 8-10 mg was sufficient]. Five to ten minutes after anaesthesia, manipulation was carried out using external digital pressure, and Walsham's forceps to aid disimpaction and elevate depressed fractures. Details recorded included; patient age, sex, age of fracture and history of previous nasal bone fracture. A note was also made of the amount of midazolam given and of the length of the procedure. Pre and post procedure photographs were used as the objective measure of outcome. These were examined by an independent consultant otolaryngologist who assessed the effectiveness of the procedure in producing nasal bone re-alignment but had no other role in the study.

Subjective outcome was measured using a questionnaire administered to patients by a senior member of the nursing staff prior to their discharge. The patients were asked to assess deviation/deformity and overall satisfaction using linear analogue scales 1-10. They were also asked to assess the discomfort associated with the procedure and their awareness of the procedure using similar linear scales 1-10. In addition patients were required to contrast the discomfort experienced with that of a dental filling, and state whether they would be prepared to undergo the same procedure again. These assessments had been used previously in assessing acceptability of manipulation (Owen et al., 1992). Patients were discharged for outpatient review at 4 weeks post-surgery.

RESULTS

Between October 1996 and January 1997, 35 adult patients presented to the clinic with nasal bone fractures requiring manipulation. Of these 28 (80%) were male and 7 (20%) female with an average age of 23.7 years (range 15 to 44 years). Eight patients (23%) reported a previous fracture of their nose. All patients agreed to take part in the study and 32 out of 35 (91%) returned their questionnaires. Thirty patients (86%) achieved a full pre-operative and post-operative photography assessment.

Figure 1 compares the patients subjective assessment with the independent observers assessment of the success of the procedure in reducing the deformity. The same linear analogue scale was used in each case, 10 being the best possible score. The pain associated with the procedure was also assessed using a linear analogue scale (Figure 2). The most frequent pain score was 1 out of 10, this being reported by twenty-one patients (60%).

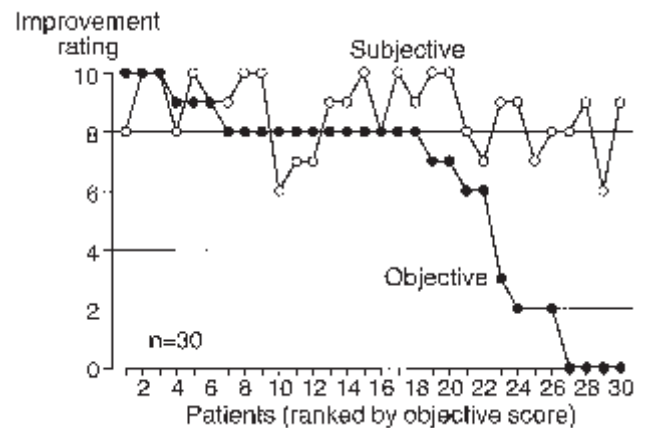


Figure 1. Patients subjective assessment of the success of the procedure in reducing the deformity following manipulation compared with the independent observers objective assessment.

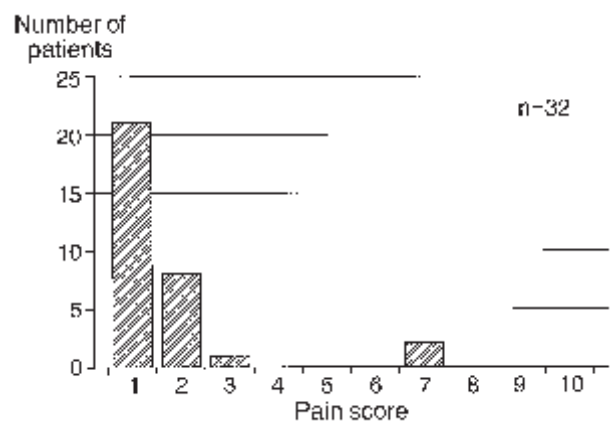


Figure 2. The pain associated with the procedure assessed using a linear analogue scale: 1-10, 1 being the lowest possible score.

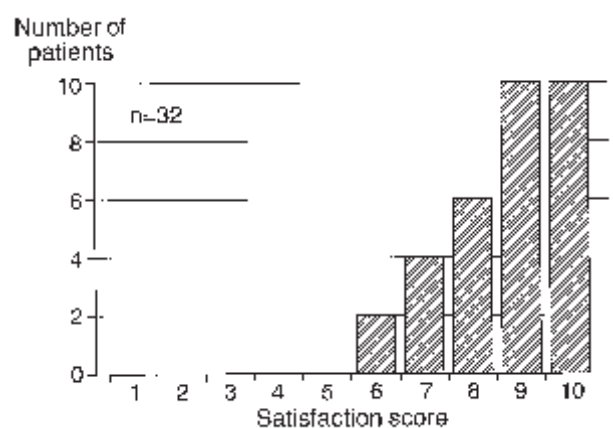


Figure 3. Patients overall satisfaction with the procedure.

The 2 patients who scored 7 on our pain scale were the first two patients treated and suggests an improvement in technique during the early phase of this study. Patients overall satisfaction with the procedure is depicted in Figure 3. Twenty-eight out of 31 (90%) found the procedure less painful than a filling at the

dentist (one had never had a filling) and 31 out of 32 (97%) said that they would undergo the same procedure again if they fractured their nose again in the future. The procedure took on average 15 minutes to perform. There were no post-operative complications and all patients were discharged home later on the day of surgery. Complete sets of pre-operative and post-operative photographs were available in 30 patients. The effectiveness of the treatment as assessed by the independent observer, showed a significant reduction in deformity in 27 (90%) of these patients ($P=1.27 \times 10^{-9}$).

DISCUSSION

While manipulation under 'local anaesthetic with sedation' has been the standard practice in our department since 1994, we could find no other description of this technique in the literature. As patient acceptability of the local anaesthetic with sedation technique was not known, we set out to measure this. Of particular interest was how the pain scores compared with other studies using local anaesthetic without sensation. Cook et al. (Cook et al., 1990) found no significant difference, in terms of cosmetic outcome and post-operative airway patency, between local and general anaesthesia, but did find that local anaesthesia was uncomfortable for patients. To overcome this the authors attempted to develop a more acceptable method using alternative sites for infiltration of local anaesthetic (Cook et al., 1992). They compared intranasal infiltration with an external percutaneous route concluding that the external approach was less painful. Despite this the majority of patients still scored either 2 or 3 plus on a pain scale of 1-5! El-Kholy (El-Kholy, 1989) assessed the use of emla cream as a possible alternative although the adequacy of anaesthesia produced has been questioned. This method was also time consuming as patients had to wait for an hour after the cream was applied before the manipulation. Owen (Owen et al., 1992), using a questionnaire administered to patients post-operatively to assess level of discomfort, concluded manipulation under local anaesthesia was an acceptable technique, although the majority experienced mild to moderate discomfort. Well over a third of their cohort found the procedure worse than a dental filling.

Our patients subjective assessment of cosmetic appearance was similar to that of previous trials. Patients generally rated their outcome higher than the independent observer's objective assessment. This has been noted before (Dickson and Sharpe, 1986) and can be partially explained by the "placebo effect". The pain scores indicate that local anaesthetic with sedation is very well tolerated by patients. This is supported by 90% finding it less painful than a filling at the dentist. We feel that these results strongly support the use of local anaesthetic with sedation as a better tolerated alternative to local anaesthetic alone. Furthermore we were also able to disimpact fractures with the aid of instruments following an internal nasal block. This had not been a feature of many of the previous studies.

The entire procedure was performed by a single doctor with the aid of an anaesthetic nurse. It took on average fifteen minutes to

perform and is not a burden on theatre time. The performance of the procedure as a day case in theatre rather than in the out-patient department not only allows patients time to recover sufficiently, but it also promotes local anaesthetic manipulation as a safe and more acceptable technique.

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