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Clinical Paper

Nasal Trauma: Who Nose what happens to the non-manipulated?

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ABSTRACT

Background: Nasal trauma is the most common facial injury worldwide. Prompt assessment allows for recognition of injuries requiring surgical intervention in the form of nasal bone manipulation. The literature is unclear to what extent patients undergoing conservative management subsequently require surgical intervention.

Methods: A retrospective chart review of all patients presenting with nasal injury between July 2017 and July 2018 who underwent conservative and surgical management was undertaken. Re-referral and subsequent surgical intervention were documented.

Results: In a cohort of 390 patients with nasal injury 229 patients underwent conservative management. Average age was 29 years. Males comprised 60% of our conservative cohort and 81% of the manipulated cohort. 8.3% of patients managed conservatively and 12% of those undergoing manipulation were re-referred.

Conclusion: Nasal trauma assessment is a significant workload for an ENT unit. Conservative management is appropriate following clinical assessment and does not lead to increased intervention compared with those who are surgically manipulated.

KEYWORDS: Nose Nasal Bone Nose Deformities, Acquired

INTRODUCTION

Nasal bone fractures are the most common facial skeleton fractures in the United States, with an estimated incidence of 53.2/100,000 [1]. Similarly in the UK, facial injuries approximate 500,000 attendances per year to accident and emergency (A&E) departments [2]. Of these injuries nasal bone fractures were found to be the commonest facial skeleton fracture [3].

There is a male to female propensity in nasal bone fractures. Mechanism of injuries for significant facial injuries varies, however the incidence of assault and excessive alcohol consumption are found to be on the rise [4].

The impact on patients' lives can be very significant following nasal injury and inadequate management has been shown to have a negative psychological impact on the self-esteem and confidence of patients [5]. A recent questionnaire from a group in London found that 64% of patients would choose to have their manipulation when looking at events in hindsight [6]. Furthermore, patient satisfaction with outcome was highest when nasal bone manipulation was performed within 2 weeks of injury [6].

Nasal injuries can require urgent intervention. After an assessment, patients are either managed conservatively, are offered a manipulation of their nasal bones, or will require more invasive intervention. Following the set-up of a nasal fracture clinic in Waterford, Ireland, Basheeth et al found that the 11% of patients required formal septorhinoplasty [7].

The high incidence of nasal injuries adds significant pressure to A&E departments and presents a challenge to ENT departments on how best to manage and treat the subsequent nasal fractures. The aim of this study was to conduct a retrospective study to compare the outcomes of those patients who were managed conservatively versus those who were manipulated when they were assessed for their nasal injury. Following a literature review, it is believed this is the first paper that specifically identifies patients who initially underwent conservative management and were later found to require definitive intervention.

MATERIALS AND METHODS

A retrospective case note review of all patients undergoing assessment for nasal injury over a 12-month period was performed. All patients referred from other healthcare professionals with concerns regarding nasal injury were included. A diagnosis of nasal fracture was made based on clinical findings. A decision to manipulate nasal bones was a shared decision between clinician and patient. Charts were readily available due to the nature of the evolving service provision of acute presentations to the ENT department. Demographic data was recorded, in addition to mode of injury, date of injury and length of time to assessment. Subsequent referral by a General Practitioner for nasal assessment was documented. If a further referral had been received, a decision to offer further operative intervention was also recorded.

ETHICAL CONSIDERATIONS

This chart review was undertaken as part of wider NHS development. In view of its retrospective nature, ethical approval was not required

RESULTS

A total of 390 patients were assessed following nasal injury. Of these, 58.7% (n=229) were managed conservatively,

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given advice at their appointment and discharged. The mean age of patients managed conservatively was 29.1 (range 35 weeks to 87 years). The average time from nasal injury to formal ENT assessment was 10.6 days. The majority of patients were male, 59.8% (n=137).

Figure 1 shows the documented mechanisms of trauma. Falls were the most commonly reported injury in patients who were managed conservatively (n=83), followed by assaults (n=58) and sports related injuries (n=35). Mode of injury varied by sex and is reflected in Figure 2 and Figure 3. Women more commonly suffered from falls, 54.3% (n=50)

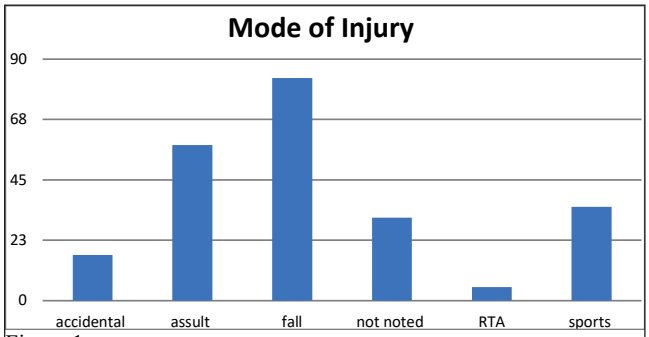

Figure 1

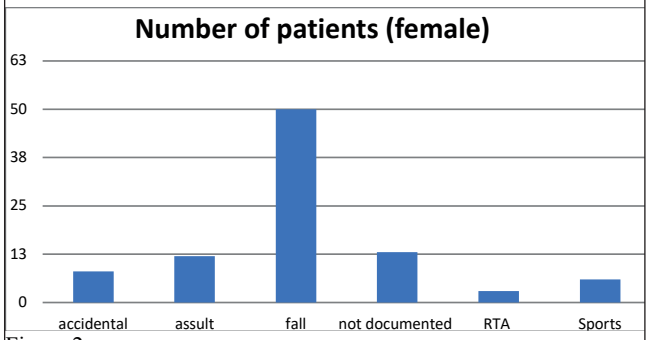

Figure 2

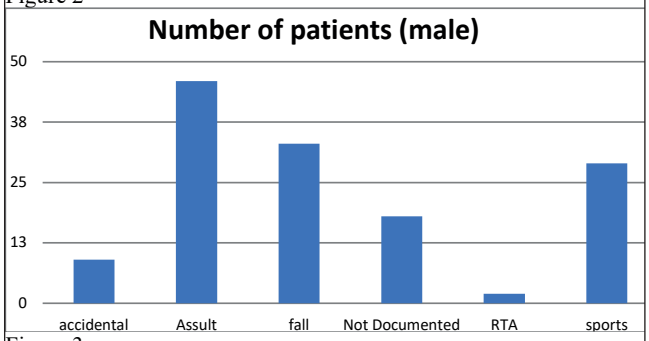

Figure 3

whereas the most common injury reported by men were assaults, 33.6% (n=46).

Of the 161 patients undergoing nasal bone manipulation 21.1% (n=34) were performed under local anaesthesia on initial attendance and 78.9% (n=127) under general anaesthetic. Males were more likely to require manipulation of their nasal bones with 82.4% of local anaesthetic procedures and 81.1% of general anaesthetic procedures being performed on males.

8% (n=19) of patients who were managed conservatively have subsequently been referred back to the ENT department for consideration of further management of their nasal symptoms. A total of 3% (n=7) of the conservatively managed cohort subsequently were offered formal operative intervention in the form of a septoplasty or septorhinoplasty.

In comparison, 11.8% (n=15) of patients who underwent MNB under general anaesthetic were referred back to the ENT outpatient clinic. Of these, 9 patients were offered definitive surgical intervention. Of those patients manipulated at ward level under local anaesthetic, 14% (n=5) were referred back, of which 5.8% (n=2) were offered definitive surgical intervention.

DISCUSSION

Facial trauma and in particular nasal trauma is commonplace. The incidence has been reported as 53 per 100,000. Our dataset represents a large cohort and the demographics are comparable with literature on nasal trauma aiding the validity of the results. Our results show that the vast majority of patients are seen, assessed and discharged in an appropriate manner.

It was interesting to note, but perhaps unsurprising, that in the conservative group of patients, males only made up 59.8% of the total number of patients. This differs significantly with those undergoing manipulation either under general or local anaesthetic (81.1% and 82.4% respectively). The authors suspect this difference is largely due to greater force of injuries to the nasal bones from life situations that young males find themselves in such as sports and assaults.

In our series, only 8.3% (n=19) of patients managed conservatively were subsequently referred in by their General Practitioner for a further opinion. Of these only a small number went on to have definitive intervention at a later stage. This is compared to the 11.8% of patients who were referred following general anaesthetic manipulation and 14% of patients who were referred following local anaesthetic MNB. The referral rates following intervention are in keeping with unsatisfactory results documented by Murray and Maran in 1980 [8] and similarly by Crowther and O'Donoghue in 1987 [9]. Given that the psychological impact from potential change in appearance, in addition to change in nasal function, this small number of formal interventions suggests that conservative management, when selected, is appropriate in the vast majority of cases.

The assessment of nasal trauma is clinical and as such it can be difficult to quantify severity of injury. However, it seems logical that those patients who undergo manipulation of nasal bones may have experienced more severe injuries. As such this cohort are at an increased risk of having post procedural residual deformity or problems with nasal function and are therefore more likely to require definitive surgical management in the future. We observed that patients were more likely to be re-referred back to ENT services if they had previously undergone a manipulation

of nasal bones. Patients that had previously underwent a manipulation of nasal bones were also more likely to be offered elective surgical intervention when compared to patients that had been re-referred who had previously been managed conservatively. This would be in keeping with the observation that more force is required to cause nasal bone fracture, and therefore greater damage to the nasal structure.

From the literature it is apparent that earlier intervention results in higher patient satisfaction with the overall procedure. Sharma et al found that there was a negative correlation between patient satisfaction and increasing time from injury to procedure [6]. We also know that as time progresses, nasal healing occurs and can hinder good manipulation. In our cohort, the average time to assessment was 10.56 days highlighting that ample opportunity to ensure manipulation within 14 days was given if deemed necessary.

It must be noted that due to the nature of this piece of work, there may be a, as of yet undocumented, group of patients who have yet to seek referral for their nasal symptoms. This is due to those patients who may not have yet sought referral to ENT from their GP. We therefore may see in the future that the true number of patients seeking a further opinion is under-reported in this cohort – however this number is expected to be small. Further to this, there is anecdotal evidence only, to suggest that a small volume of charts may not have been available due to use in legal proceedings. One final limitation on documentation of further referrals and intervention would be that only National Health Service notes were available and therefore referrals and intervention in the private sector may mean referral rates are underestimated, although the impact of this is felt to be limited.

CONCLUSIONS

In summary, nasal trauma is a significant workload within an otolaryngology department. The incidence of further referral following discharge at a nasal injury assessment is not well documented in the literature, nor is the subsequent rate of intervention. Clinical assessment, and where appropriate, manipulation of nasal bones remains paramount in treating this common condition. This study will help us better counsel patients with mild nasal injuries, allowing the clinician to reassure patients that opting not to undergo manipulation at the time of assessment is not simply postponing the need for intervention. Given that increasing emphasis is placed on value for money within an NHS that is being squeezed for resources, it is imperative that we have knowledge of, and can justify, the early assessment and intervention in such groups of patients. The information presented here will be of importance in not only service planning, but also highlights the training opportunities that are present from assessment of nasal injuries by the more junior members of staff.

Authorship Contribution

N Hope - Data collection and analysis manuscript preparation

K Young - Data collection, and analysis manuscript preparation

K.Mclaughlin - Data collection, manuscript preparation

C. Smyth - Patient cohort identification, data analysis, manuscript preparation

Conflict of Interest

There are no conflicts of interest to declare

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