

Incidence of oronasal haemorrhage in infancy presenting to general practice in the UK

Neil McIntosh and James Chalmers

ABSTRACT

The frequency of oronasal haemorrhage in infancy was estimated from two national GP research databases (6% UK population). When a case was identified, other presentations in the child over the first year were available from one dataset. In the first year haemoptysis is rare. In contrast, epistaxis (7–20 cases of per 10 000 infants) was 10 times more common, and 14.3% of these infants had an injury at some other point in infancy, (four times greater than the general population). In general practice epistaxis may herald other trauma presentations, implying that such infants may be part of a high-risk group for injury.

Keywords

child abuse; child protection; epistaxis; haemoptysis; infant.

INTRODUCTION

Blood issuing from the nose or mouth of an infant is rare in the first year or two of life and sometimes suggests significant underlying problems.^{1–4} This paper explores the epidemiology of oronasal haemorrhage in children attending general practices in the UK in the first 3 years of life.

METHOD

Details of the two datasets (QResearch, Nottingham, 5 years; and Information Services Division [ISD], Scotland, 8 years) and Read codes used are shown in Appendices 1 and 2, respectively. The numerators were any code indicating haemorrhage from the nose or mouth. The denominators were taken as the numbers of children registered in the database for each of the first years of life. In the ISD dataset it was possible to view all other reasons for attendance in the first year of life when an index haemorrhage was identified, and particular attention was paid to attendances for trauma or neglect.

RESULTS

The denominator was 6–7% of the population at this age. Table 1 shows the types of haemorrhage and age at which they occurred in the two datasets.

No episodes of trauma or neglect were seen in cases of haemoptysis, but seven (14.3%; 95% confidence interval [CI] = 6.8 to 27%) of the 49 children with epistaxis had injuries recorded. Four children had head injuries at 25, 34, 40, and 44 weeks (all at different times from the recorded epistaxes); one had facial contusions at the time of the epistaxis (37 weeks); one had contusions and fractures of the rib and humerus, each at different ages from the epistaxis; and one had bruising, again recorded at an age different from the epistaxis. This figure of 14.3% contrasts with 3.3% (95% CI = 2.9 to 3.7%) of a non-oronasal haemorrhage infant group in the most recently available 3-year period (2003–2005).

DISCUSSION

Summary of main findings

Attendance for oronasal haemorrhage was

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uncommon. Epistaxis was uncommon in the first year and became increasingly common over the next 2 years. Haematemesis was half as common, and haemoptysis seven times less common and both became rare after the first year.

Strengths and limitations of the study

Blood issuing from the nose or mouth in an infant or young child is a disturbing sign for a parent to witness. Distinguishing haematemesis from haemoptysis or epistaxis in a young child can be difficult. This study therefore reviewed all the causes of oronasal haemorrhage in early childhood in two national general practice datasets.

The wide range of possible incidence for epistaxis in both datasets may reflect the inability within the datasets to distinguish the presenting complaint from a previous history.

Comparison with existing literature

No previous studies were found on the incidence of oronasal haemorrhage in general practice in young children, and there were few relating to hospital admissions or attendances.

A recent population study examining the epidemiology of oronasal haemorrhage presenting to hospital in the first 2 years of life showed, firstly, such haemorrhages are rare, with haemoptysis being rarer than epistaxis.² Second, most cases of epistaxis are associated with trauma, and in a significant proportion child protection issues were raised. Third, it found that when there is no obvious trauma there are a number of serious underlying problems such as malignancy or thrombocytopenia. The hospital study left two open questions: firstly, would parents whose infant had a nose bleed or oronasal haemorrhage take them for a medical opinion? Alternatively, would attendance at the general practice make further hospital evaluation unnecessary? Whether parents take the problem seriously was addressed by a public survey organisation poll of 320 parents of children aged less than 5 years: 94% would seek immediate help either at their general practice or emergency department.⁵ Whether they would do this in real life is, of course, unknown.

How this fits in

Oronasal haemorrhage is rare in the first year of life. If there is no history of obvious accidental trauma, full investigation for serious problems such as a bleeding tendency or child abuse should be initiated.

Table 1. Type of haemorrhage and age group.

	n (rate per 10 000/year)		
	Aged <1 years	Aged 1–2 years	Aged 2–3 years
QRResearch (5 years data)			
Denominator	193 591	224 612	222 974
Haemoptysis	19 (0.98)	20 (0.89)	6 (0.27)
Epistaxis	140 (7.20)	524 (23.6)	812 (36.5)
Bleeding gums	3 (0.15)	23 (1.02)	30 (1.36)
Haematemesis	67 (3.46)	45 (2.00)	29 (1.30)
Pulmonary haemorrhage	11 (0.57)	2 (0.08)	1 (0.04)
ISD (8 years data)			
Denominator	25 282	–	–
Haemoptysis	4 (1.58)	–	–
Epistaxis	49 (19.7)	–	–

QRResearch = predominantly England and Wales database; ISD = Information Services Division of the Scottish Health Service database.

The emergency department and hospital data suggested that the incidence of epistaxis in the first year of life that presents to hospital is about 1 case per 10 000 – all children arriving at the emergency department being admitted. This study of general practice attendance for oronasal haemorrhage demonstrates an incidence of between 7 and 20 cases per 10 000 infants per year, some 10 times more common than the numbers attending a children's hospital.

The Scottish ISD dataset also indicates that cases of epistaxis in infancy are four times more likely to have some other significant injury at some stage in the first year of life than those infants who do not have an epistaxis. In the hospital study,² the high incidence of injuries was concurrent with the epistaxis and, in retrospect, there were child protection concerns in approximately half of these 'accidental' injuries associated with the epistaxis. It is therefore of concern that other injuries occurred in seven out of the 49 infants presenting at the general practice with epistaxis, but, in contrast, on different occasions to the epistaxis. There was no information available in the GP dataset on whether concerns about abuse were raised at the time of either the epistaxis or the traumatic injuries.

Implications for clinical practice

Oronasal haemorrhage in infancy should be taken seriously if it arises spontaneously, and may flag up potential child protection concerns if associated with trauma.

Ethical approval

Sanction of a research ethics committee was not required for this project as only anonymised data were used. However, the first author (Neil McIntosh) had to submit the protocol for peer review and consideration by the QRResearch management group and the privacy advisory

committee of the ISD before receiving data

Competing interests

The authors have stated that there are none

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REFERENCES

1. Pallin DJ, Chng YM, McKay MP, *et al.* Epidemiology of epistaxis in US emergency departments, 1992 to 2001. *Ann Emerg Med* 2005; **46**(1): 77–81.
2. McIntosh N, Mok JY, Margerison A. Epidemiology of oronasal hemorrhage in the first 2 years of life: implications for child protection. *Pediatrics* 2007; **120**(5): 1074–1078.
3. Okada T, Sasaki F, Itoh T, *et al.* Bleeding disorder as the first symptom of biliary atresia. *Eur J Pediatr Surg* 2005; **15**(4): 295–299.
4. Sandoval C, Dong S, Visintainer P, *et al.* Clinical and laboratory features of 178 children with recurrent epistaxis. *J Pediatr Hematol Oncol* 2002; **24**(1): 47–49.
5. McIntosh N, Haines L, Baumer JH. Parents reactions to nose bleeds and salt ingestion in infancy. *Arch Dis Child* 2008; **93**(5): 449.

Appendix 1. Details of the data sets.

► Datasets

Two general practice datasets were available to determine the incidence of oronasal haemorrhage in children less than 3 years of age and additional conditions that might occur at the same time as their presentation with such haemorrhages.

- The QResearch database held by the Department of General Practice at the University of Nottingham. Five years of data were evaluated (2002–2006) for all GP consultations for oronasal haemorrhage occurring in the first 3 years of life.
- The Practice Team Information database of the Information Services Division (ISD) of the Scottish Health Service. Eight years of data were assessed for epistaxis and haemoptysis in the first year of life, together with the reasons for all other attendances to either a GP or attached nursing staff in these infants when one of these problems was positive.

Both data sources aim to collect data from a general spectrum of the population. They collect data in slightly different ways and this allows certain questions to be answered more clearly from one dataset compared with the other. Both datasets are reliant on the quality of GP record keeping.

In the QResearch dataset, the date of birth of all patients is converted (for anonymity) to the first of January that year, and the year of age is related to that date. The date of each event is, however, kept accurately. This can lead to some episodes of data in the first year of a patient's life being classified in the second year, and certain episodes in the second year of life being classified in the third year. Thus, although a comparison of incidences for the first 3 years of life is possible, an accurate estimate of incidence is not possible for each year. There was no way of knowing in the QResearch dataset whether the problem was active or in the history.

In the ISD database, all attendances at the general practices are logged with their attendant diagnosis and postnatal age. It was therefore possible to identify whether the haemorrhage was an active problem and also what other problems had led to general practice attendance in the first year for all children who presented with an oronasal haemorrhage.

► Codes

The group of Read codes used to identify oronasal haemorrhage is shown in Appendix Table 2.

If any of these codes were positive in the ISD dataset, all other presentations to the general practice (nurse, health visitor, or doctor) were reviewed, with particular attention to problems of trauma or neglect.

Appendix Table 2. Read codes used to identify oronasal haemorrhage.

Read code	Read definition	Category
14C8	H/O: haematemesis	Haematemesis
172	Blood in sputum — haemoptysis	Haemoptysis
172-1	Blood in sputum — symptom	Haemoptysis
172-2	Haemoptysis — symptom	Haemoptysis
1928	Bleeding gums	Bleeding gums
1C6	Nose bleed symptom	Epistaxis
1C6-1	Epistaxis symptom	Epistaxis
1C62	Has nose bleeds — epistaxis	Epistaxis
1C6Z	Nose bleed symptom NOS	Epistaxis
2556	O/E — bleeding gums	Bleeding gums
2D25	O/E — epistaxis	Epistaxis
J680	Haematemesis	Haematemesis
J680-1	Vomiting of blood	Haematemesis
R047	[D]Epistaxis	Epistaxis
R063	[D]Haemoptysis	Haemoptysis
R0630	[D]Cough with haemorrhage	Haemoptysis
R0631	[D]Pulmonary haemorrhage NOS	Pulmonary haemorrhage
R063z	[D]Haemoptysis NOS	Haemoptysis