

Children Presenting to an Ophthalmic Casualty Department

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Summary

A five month prospective survey of all children (0–14 years) attending an ophthalmic accident and emergency department was carried out to determine the disease profile and the primary ophthalmic health care provided. A data base was used to collect and analyse all cases. Seventy three per cent of 475 children attending had non-traumatic ophthalmic diagnoses, less than half being referred from their general practitioners. The remaining children had minor ophthalmic injuries of which less than one quarter were referred from their general practitioners. Four of the minor ophthalmic injuries were suspected of being non-accidental injury. The management of such cases is discussed. The ophthalmologist in an ophthalmic casualty department has an important role in the provision of primary ophthalmic care for children. In the management of minor ophthalmic injuries, the alerting factors for non-accidental injury should be sought, although the apparent incidence is low.

Surveys of ophthalmic casualty units carried out in Bristol,¹ Southampton,² Leicester,³ and Canterbury⁴ have highlighted the range of disorders that may present and also various demographic features. None of these surveys have specifically analysed the problems of children. The purpose of this survey was to determine the diagnostic profile and referral pattern of children attending a busy ophthalmic casualty department.

Methods

All children aged 14 years or less attending Moorfields Eye Hospital, City Road, Accident and Emergency Department between November 1986 and March 1987 were included in the study. The majority of children were seen by the authors but if this was not possible, the notes were examined and the cases discussed with the attending ophthalmologist. Clinical data were entered into a

data base (DBase III plus). Diagnostic classifications were entered using the ICD codes.⁵

Results

Eleven-thousand, four-hundred and eighty patients of all ages attended the Casualty department during the five months of this survey. 4.4 per cent (501) of these were children aged 14 years and under. Four-hundred and seventy-five children (95 per cent of the total) are included in the study whilst in 26 children the data was incomplete.

Three-hundred and forty-two (73 per cent) attended with non-traumatic disorders (see Fig. 1). The specific diagnoses are summarised in Table I. The remaining 133 (27 per cent) children had minor injuries (see Fig. 2 and Table II).

The age profile for the two groups is shown in Fig. 3 and the mode of referral in Fig. 4.

Four cases were referred to the Paediatric

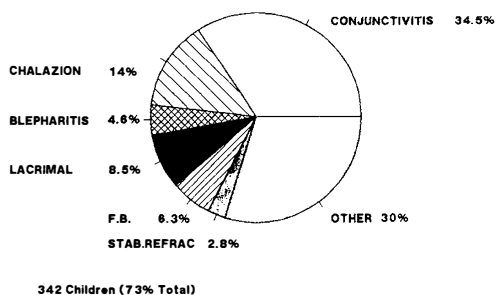


Fig. 1. Non-injuries.

Consultant for assessment of suspected non-accidental injury (NAI).

Case 1

An eighteen month old child was brought from home to the Accident and Emergency department by her grandmother. A conflicting history was given that the child had both run into a burning cigarette and that the grandmother had dropped the cigarette onto the child. Examination showed a moderately severe skin burn near the right lateral canthus. The child was referred for appraisal as the history was inconsistent with the injury. The burn could not be explained adequately and the Paediatrician considered that NAI could not be excluded. The general practitioner and local social services were alerted by the hospital that this was possibly NAI.

Case 2

A two year old child was referred to the Accident and Emergency department from a general hospital casualty. His mother had been in another room when she heard the child scream, rushed in and found a lighted cigarette on the floor. There was a corneal injury consistent with that from a cigarette, but the history was suspicious and therefore the child was referred for assessment. The medical social workers enquiries revealed that there were financial problems in a single parent family. The mother failed to keep the appointment with the consultant paediatrician. The case remained inconclusive and the general practitioner was informed that this was potentially NAI.

Case 3

A two year old boy was brought to the A and E Department by his grandmother who was looking after him while the single parent was at work. She gave a history of dropping the child while carrying him in the street. The child sustained brow grazes. The history was suspicious and the child was referred for assessment. The conclusion drawn was

that this was an accidental injury consistent with poor supervision. Following consultation it was decided that it was not necessary to admit the child or arrange follow up.

Case 4

This two year old boy was brought to the A and E Department by his father. The history given was that while father was in another room the child had hit his eye on one of the bars of his cot, sustaining a sub-conjunctival haemorrhage. This seemingly improbable story prompted the ophthalmologist to refer the child. However, the consultant paediatrician diagnosed significant behavioural problems in that the child was a 'head banger'. This adequately accounted for the history and findings. It was not necessary to admit this child. Paediatric follow up was arranged for management of the behavioural problem but the family did not reattend and could not be traced.

Discussion

The results show that the majority of children attended the Accident and Emergency Department with non-injury related condi-

Table 1 Non-injury diagnoses n=342 children

Diagnosis	no.	%
External eye		
—conjunctivitis	118	34.5
—blepharitis	16	4.6
—chalazion	48	14.0
—foreign body (conjunctival + sub-tarsal = 14 corneal = 8)	22	6.3
Refractive and strabismus		
—strabismus	7	2.0
—refractive error	3	0.8
Lacrimal (blocked nasolacrimal duct = 24 dacryocystitis = 5)	29	8.5
Other		
—nothing found wrong	68	20.0
—primary herpes	6	
—iritis	4	
—pre-septal cellulitis	5	
—hordeolum	3	
—migraine	2	
—contact lens overwear	2	
—allergy	2	
—spontaneous conjunctival haemorrhage	2	
—iris anomaly	1	
—congenital cataract	1	
—sixth nerve palsy	1	
—keratoconus	1	
—sinusitis	1	
Total	342	100.0

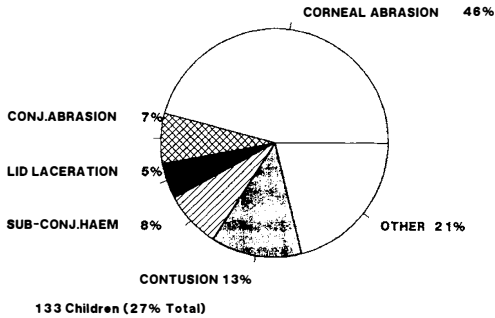


Fig. 2. Injuries.

tions. By far the commonest problems encountered were external eye and lacrimal (see Fig. 1 and Table I). No abnormality could be detected in one fifth of all children attending in whom the complaints ranged from 'rubbing eyes yesterday' or 'crying yesterday, is there something in his eye?', 'headache' and 'poor school performance'. This was a surprisingly high number and probably reflects the parental concern and anxiety for their children's sight. True refractive errors and strabismus were encountered in only a small number of children. The 'other' group of non-injuries included a broad range of diagnoses including congenital anomalies, nerve palsy and iritis.

Amongst children with injuries corneal and conjunctival abrasion was by far the commonest finding, with a higher proportion of fingernail and toy related injuries in the under fives and increasing sports related injuries in the older children and teenagers. Contusion injuries were commoner in the older child from sports injuries. The 'others' group of minor injuries included chemical injuries (from perfume, talc, deodorant), thermal injuries (cigarettes), superglue, traumatic nerve palsy, and a small number in whom there was a clear history of injury but no significant findings by the time the child attended (one day later).

As would be expected, a greater proportion of children with injuries than those without, attended without a general practitioner's letter, or via another hospital casualty department. Although it is of note that for both groups self-referrals were the commonest mode of referral. Less than half the children

with non-traumatic disorders and less than a quarter of the children with injuries were referred via their general practitioner. This demonstrates the role of the accident and emergency department in the provision of primary ophthalmic health care for children. The ophthalmologist is often the first medical practitioner to examine the child. This is important when considering whether non-accidental injury presents to an ophthalmic casualty department and for the appropriate management of suspected cases.

We found four cases in whom alerting factors prompted the possible diagnosis of non-accidental injury. The ophthalmic casualty study by Vernon in Bristol¹ revealed two cases of 'battered baby' syndrome in a six month study of 3210 trauma cases of all ages. Jones *et al.*² from Southampton Eye Hospital did not report a single case over a similar period during which 3536 trauma cases of all ages were reviewed.

The ophthalmic manifestations of severe non-accidental injury are well described and may include retinal detachment,^{6,7} isolated intra-ocular haemorrhage⁸ or that secondary to sub-dural haematoma described by Mushin⁹ and Willshaw.¹⁰ Peripheral chorioretinal scarring was first described as

Table II Injury diagnoses n=133

Diagnosis	no.	%
Corneal abrasion	61	46.0
Conjunctival abrasion	9	7.0
Lid laceration	7	5.0
Sub-conjunctival haemorrhage	11	8.0
Contusion		
(commotio retinae = 4		
traumatic iritis = 8		
hyphaema = 2		
orbital blow-out fracture = 2		
peri-orbital bruising = 1)	17	13.0
Other		
(chemical keratitis = 1		
chemical conjunctivitis = 4		
thermal injury lid = 1		
thermal injury cornea = 3		
traumatic conjunctivitis = 9		
partial third nerve palsy = 1		
post-traumatic diplopia = 1		
no injury seen = 7		
superglue lids = 1)	28	21.0
Total	133	100.0



Fig. 3. Age range.

being characteristic of previous non-accidental injury by Maroteaux *et al.*, in 1967.¹¹ Harcourt emphasised that non-accidental injury could be so severe as to result in permanent visual handicap.¹² In these cases the initial diagnosis of non-accidental injury is more often made by the paediatrician or neurosurgeon in a child with severe general or head injuries and the ophthalmologist is consulted to assess the extent of ocular damage. In a series of 42 cases with confirmed or strongly suspected non-accidental injury, 19 (40 per cent) had associated ocular involvement, but of these only two presented first to the ophthalmologist.⁸ In a more recent prospective series of 22 children with established non-accidental injury presenting to paediatricians, five had associated periocular soft tissue injuries. The less severe ophthalmic manifestations of non-accidental injury are not so well described. Taylor reported two cases of recurrent chemical injury to the external eye attributable to non-accidental injury which presented as mild conjunctivitis and superficial keratitis. One case resulted in severe scarring and loss of vision before the aetiology was established.¹³ These cases are not dissimilar, however, from Munchausen syndrome by proxy, described by Meadow, in which the parent fabricates the illness for the child to seek medical attention.^{14,15} Characteristically the symptoms and signs go when the parent is excluded. This syndrome can be difficult to treat.

In this survey, cases 1 and 2 were potential non-accidental injuries caused by lighted cigarettes. In cases 3 and 4 the diagnosis of non-accidental injury was excluded on con-

sultation with the paediatric ophthalmologist and social worker and an alternative diagnosis of head-banging was made in case 4. Although two further children with cigarette injuries presented over the five months they were not referred because the injury appeared entirely consistent with the history. It is obviously not possible to state categorically that there were no cases of non-accidental injury amongst the remaining 129 children who presented with injuries during the five months of this study. In this study the principal reasons for referring a child to the paediatric consultant for assessment of suspected non-accidental injury were when the circumstances of their injury were either inconsistent with the injury, incongruous or there were no witnesses to the event. In none of the children was there any delay in attending following the injury.

The following case presented to the accident and emergency department after the conclusion of this five month study and illustrates that non-accidental injury may present to an ophthalmic casualty.

Case X

A seven year old boy attended Moorfields Eye Hospital Accident and Emergency department at nine thirty in the evening on September 30, 1987, with a sub-conjunctival haemorrhage. He was referred from the Casualty Department of the Queen Elizabeth Hospital for Children which he had attended alone. Despite contact being made with an aunt to suggest she bring the child to Moorfields he arrived unaccompanied. He was a reticent historian and did not explain how he

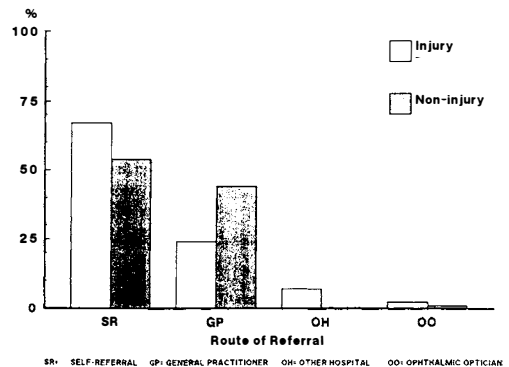


Fig. 4. Route of referral.

had been injured nor why he was alone. The aunt was contacted and eventually collected the child. At this stage non-accidental injury was not considered.

Later it was learned that the injury had resulted when the aunt had hit him whilst he was trying to escape from a locked room via the balcony. This case has since resulted in a full non-accidental injury case conference.

It is important to recognise the possibility of non-accidental injury in a child with minor ophthalmic injury and carry out the normal procedure for non-accidental injury. This does not necessarily result in a full case conference and may provide an alternative diagnosis.

In the management of a child suspected of non-accidental injury the ophthalmologist should discuss the case immediately with the paediatric consultant and social worker and not as in case 1, 2 and x, wait for a subsequent out-patient appointment. The role of the social worker includes initial enquiries to the local social services to establish if the family is already known, which identifies whether the child or any of its siblings are on the 'at risk' register. The decision to call a full case conference is made following full medical and social assessment. The child is admitted if there is any risk of further injury.

In summary, the ophthalmic casualty department has an important primary ophthalmic health care role, both for non-injuries and injuries. Since ophthalmologists are frequently the first medical practitioners to examine a child with minor ophthalmic injury, they should be aware of the possibility of non-accidental injury.

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