
OUTPATIENT MANAGEMENT OF SMALL TRAUMATIC HYPHAEMAS: IS IT SAFE?

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SUMMARY

In this prospective study patients with small traumatic hyphaemas were managed as ambulatory outpatients. No routine systemic or topical treatment was given. The patients were reviewed daily in the Casualty Department until the blood had cleared, after which they were examined fully. The incidence of rebleeding and the number of days for the blood to clear were comparable to figures for hospitalised bed-bound patients. Nine patients (21%) defaulted from follow-up. Outpatient management of small traumatic hyphaemas is safe in compliant patients and may save valuable resources.

There is no consensus on the management of patients sustaining traumatic hyphaemas occupying less than one third of the depth of the anterior chamber. These small hyphaemas rarely lead to complications in predominantly Caucasian populations.^{1,2} The rebleeding rate of small hyphaemas in Caucasians is less than 10%.²⁻⁴ Complications due to raised intraocular pressure (IOP) such as optic nerve damage and corneal blood staining are rare in this group.¹ A poor visual outcome for hyphaema patients is usually associated with a large hyphaema or with concurrent retinal injuries.^{5,6}

Treatment aims are to allow the blood to clear, to prevent rebleeding, to manage raised IOP and to identify any sight-threatening associated lesions. There is conflicting evidence as to whether bed rest prevents rebleeding in small hyphaemas. Many units in the United Kingdom routinely admit all hyphaema patients. We present a Casualty-based, prospective study on the management of patients with small traumatic hyphaemas as ambulatory outpatients.

MATERIALS AND METHODS

Consecutive patients were recruited into the study directly from the Casualty Department, provided they fulfilled the

inclusion criteria. An adaptation of Edwards and Layden's classification⁵ was used whereby a microscopic hyphaema was defined as grade 0 and settled blood occupying less than one third of the anterior chamber as grade 1. The inclusion criteria were: (1) traumatic hyphaema, grade 0 or 1; (2) no history of previous ocular disease; (3) willing and able to attend Casualty for daily follow-up; (4) sickle-cell negative.

All patients (or their parents) gave informed consent. No routine topical or systemic treatment was given. Patients were instructed to rest at home and to avoid exertion, eye-rubbing and aspirin. They were requested to come to Casualty immediately if they suffered either increased pain or decreased vision.

Associated injuries such as corneal abrasions were treated on their merits. Raised IOP above 30 mmHg was treated with beta-blockers in the first instance and systemic acetazolamide if necessary.

Patients were reviewed daily until the blood had cleared. All patients were then examined by gonioscopy and, after dilation, with indirect ophthalmoscopy. Fourteen days after presentation dilated fundoscopy with indentation was performed.

RESULTS

A total of 43 consecutive patients were recruited, of whom 36 (83.7%) were male and 7 (16%) female. The age range was 10–64 years with a mean of 28.7 years (SD 12.1). Forty-two of the patients were Caucasian, 1 was Asian. There were 24 (56%) grade 0 hyphaemas and 19 (44%) grade 1.

The average time to clear for grade 0 hyphaemas was 1.8 days (SD 2.7) and for grade 1 was 5.1 days (SD 2.4). The mean number of attendances at Casualty per patient was 4.3 (SD 1.9). The complications observed in these patients are shown in Table I. The overall rebleeding rate was 6.9%. Angle recession was seen in 49% of patients but in no case was greater than 90°. Nine patients (20.9%) defaulted from follow-up prior to discharge.

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Table I. Complications seen in 43 patients with grade 0 or 1 traumatic hyphaemas managed as ambulatory outpatients

Complication	No. of patients
Rebleeding	3 (6.9%)
Raised IOP (above 30 mmHg)	
On presentation	8 (18.6%)
On follow-up	3 (6.9%)
Iris dialysis	8 (18.6%)
Angle recession	21 (49%)
Retinal lesions	0

DISCUSSION

The aim of management of small traumatic hyphaemas is to promote rapid blood clearance in order to facilitate the diagnosis of any other pathology and to control intraocular pressure. Elevated intraocular pressure in the presence of hyphaema may cause corneal blood staining and optic nerve damage, but these are rare in association with small hyphaemas.¹²

There is no standard practice for the management of small traumatic hyphaemas. Bed rest has been recommended⁷ and is widely practised, but there have been reports that ambulation either as an inpatient⁸ or at home^{3,9,10} is not associated with any significant increase in rebleeding. Hyphaemas may, however, clear more quickly with bed rest.¹¹ There are many conflicting papers on medical therapy and it has been suggested that treatment is unlikely to affect the outcome in most cases.^{6,12} Recently, however, a large retrospective review has demonstrated a significant reduction in rebleeding after treatment with topical steroids.¹³ Antifibrinolytics have been advocated to prevent rebleeding,^{14,15} but side effects such as nausea and vomiting are frequent and their use is not widespread in the United Kingdom.

We performed a prospective, non-controlled study. This design was chosen after consideration of the number of patients required for a controlled study. For a two-tailed study having 80% power with significance at 5%, 400 subjects would be needed to demonstrate a change in rebleeding rate from 10% to 20%. For 90% power 532 subjects would be needed. Such a design is not feasible in a single-centre trial as recruitment of 43 patients took 9 months.

Our results show a similar rate of rebleeding (6.9%) to other studies on hospitalised Caucasian patients.^{1,2} The time until resolution of the blood (mean 3.2 days, SD 2.3) was also comparable to figures quoted for hospitalised patients with small hyphaemas.¹⁶ Forty-nine per cent of patients had angle recession, although none greater than 90°. The incidence of glaucoma 10 years after the injury is related to the amount of angle recessed and has been reported to occur only in patients with 180° or more of recession.¹⁷

In no patients were there any significant retinal lesions requiring treatment; we therefore cannot comment on whether outpatient management would have caused any delay in diagnosis. This is important as retinal lesions are associated with a poor visual outcome⁶ and require prompt treatment. However, our protocol involving daily examination allowed the retina to be examined as soon as the

hyphaema had resolved. This is similar to an inpatient regime. We identified several patients with raised IOP. The highest pressure was 34 mmHg on one occasion, which resolved promptly with treatment. No other pathology requiring immediate intervention was seen in our study. Our results suggest it would be possible to examine the patients less frequently, e.g. on alternate days. However, it may be that in a larger group of patients significant injuries or rises in intraocular pressure would go unnoticed for 48 hours. We would therefore recommend daily review until more evidence is available. Nine patients (20.9%) defaulted from follow-up. We cannot comment on any pathology that may have gone undetected in these patients.

CONCLUSIONS

This study has demonstrated that outpatient ambulatory management of patients with small traumatic hyphaemas was not associated with an increase in rebleeding above that expected for Caucasian bed-rested inpatients. For budgeting purposes, the cost of a 4-day inpatient admission in our institution is calculated as approximately £695, whereas that of a Casualty visit is less than £50. This form of management represents a saving of financial and inpatient resources. However, increased patient convenience and cost saving must be balanced against the high non-attendance rate amongst patients. In summary, we feel that outpatient management of patients with small hyphaemas is safe in compliant patients and equally effective to hospitalisation.

Key words: Ambulatory, Hyphaema, Rebleeding.

REFERENCES

1. Kearns P. Traumatic hyphaema: a retrospective study of 314 cases. *Br J Ophthalmol* 1991;75:137–41.
2. Agapitos RJ, Noel L-P, Clark W. Traumatic hyphema in children. *Ophthalmology* 1987;94:1238–41.
3. Sjolie AK, Martensen KK. Traumatic hyphema treated ambulatory and without antifibrinolytic drugs. *Acta Ophthalmol* 1980;58:125–8.
4. Oksala A. Treatment of traumatic hyphaema. *Br J Ophthalmol* 1967;51:315–20.
5. Edwards WC, Layden WE. Traumatic hyphema: a report of 184 consecutive cases. *Am J Ophthalmol* 1973;75:110–16.
6. Ng CS, Sparrow JM, Strong NP, Rosenthal AR. Factors related to final visual outcome of 425 patients with traumatic hyphaema. *Eye* 1992;6:305–8.
7. Darr JL, Passmore JW. Management of traumatic hyphema. *Am J Ophthalmol* 1967;63:134–6.
8. Wright KW, Sundip M, Urrea D. Bed rest versus activity ad lib in the treatment of small hyphemas. *Ann Ophthalmol* 1988;20:143–5.
9. Clever VG. Home care of hyphema. *Ann Ophthalmol* 1982;14:25–27.
10. Witteman GJ, Brubaker SJ, Johnson M, Marks RG. The incidence of rebleeding in traumatic hyphema. *Ann Ophthalmol* 1985;17:525–9.
11. Rakusin W. Traumatic hyphaema. *Am J Ophthalmol* 1972;74:284–95.
12. Wilson FM. Traumatic hyphaema: pathogenesis and management. *Ophthalmology* 1990;87:910–19.

13. Ng CS, Sparrow JM, Strong NP, Rosenthal AR. Factors relating to the incidence of secondary haemorrhage in 462 patients with traumatic hyphaema. *Eye* 1992;6:308–13.
14. Crouch ER, Frenkel M. Aminocaproic acid in the treatment of traumatic hyphaema. *Am J Ophthalmol* 1976;81:355–60.
15. Farber MD, Fiscella R, Goldberg MF. Aminocaproic acid versus prednisolone for the treatment of traumatic hyphema. *Ophthalmology* 1991;98:279–86.
16. Shamas HF, Mattai CS. Outcome of traumatic hyphema. *Ann Ophthalmol* 1975;7:701–6.
17. Blanton FM. Anterior chamber angle recession and secondary glaucoma. *Arch Ophthalmol* 1964;72:39–43.