

gain in extra new patients seen is short lived and that within 25 weeks the actual gain is halved. The exact figures will depend on the parameters used. However, the conclusions are generally applicable to all initiative clinics.

As a rule at least twice as many patients need to be seen in an initiative clinic than one might think. Clinical directors should keep this in mind when planning initiative clinics if they are to achieve targets.

Conflict of interest

MJS wrote the software M3P.

References

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Sir,
Retinal haemorrhages in an infant following RetCam screening for retinopathy of prematurity

Introduction

The RetCam 120 (Massie Research Laboratories, Inc., Dublin, California) is a digital retinal camera for

use in pediatric ophthalmology, mainly for screening babies for retinopathy of prematurity (ROP) or diagnosing and photo-documenting retinal haemorrhages in children with suspected 'shaken baby syndrome'. The hand held camera is placed on the cornea interfaced with ophthalmic lubricant. Its advantage over conventional indirect ophthalmoscopy is that of data recording and because the RetCam is easy to use, it has been promoted for use by emergency room medical staff, photographers and nurses. We report a case in which retinal haemorrhages developed shortly after a baby had been ROP screened using the RetCam.

Case report

Our practice follows the UK national guidelines for ROP detection by screening babies ≤ 31 weeks gestation, or under 1501 g-birth weight starting at 6–7 weeks postdelivery with subsequent examinations at least every 2 weeks until vascularisation has progressed into zone 3 of the peripheral retina.¹ Screening is undertaken conventionally by a consultant ophthalmologist using indirect ophthalmoscopy and also by a trained neonatal nurse using RetCam photo documentation. The RetCam had been in use on the unit for 18 months at the time and its efficacy in identifying ROP was being assessed, with the nurse RetCam screening the babies prior to re-examination, usually within 30 min, by the consultant using indirect ophthalmoscopy.

A 25-week gestation baby (birth weight 920 g) underwent initial examination on postnatal day 44. On re-examination on day 50, the RetCam picture showed no retinal haemorrhages (Figure 1). However, examination by the ophthalmologist, around 30 min after RetCam

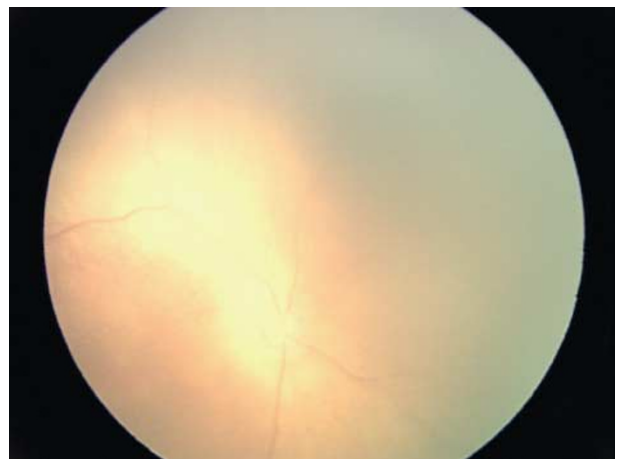


Figure 1 Initial RetCam fundus photograph showing no retinal haemorrhages.

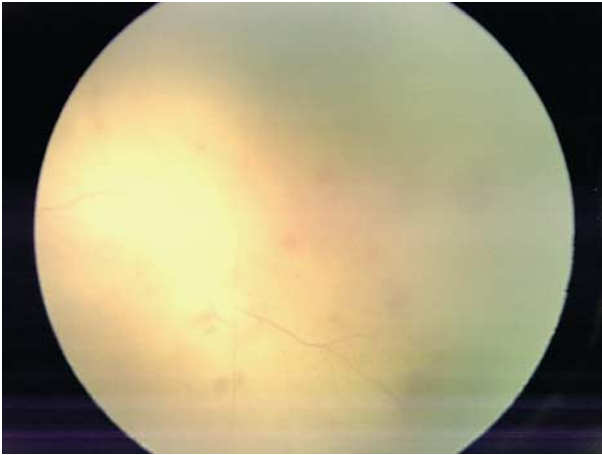


Figure 2 RetCam fundus photograph taken 70 minutes after the initial examination. There are multiple flame-shaped, 'dot' or 'blot' retinal haemorrhages that indicate bleeding at different depths within the retina.

imaging, showed widespread retinal haemorrhages in the left eye only, the right eye being normal. Repeat RetCam examination, 70 min after the first examination, documented these findings (Figure 2). The examination was atraumatic and had been carried out with the assistance of a neonatal nurse in full view of the infant's mother. The child was being continuously monitored before, during, and after examination as it required low flow nasal cannula oxygen and the records showed no evidence of distress. Cerebral ultrasound was normal as were the blood parameters. There was no bleeding from any other site and the clotting screen was normal (prothrombin time 9.2 s, INR 1.0, APTT 36 s, fibrinogen 3.3).

After 2 weeks, RetCam screening again documented no haemorrhage in either eye. When the ophthalmologist screened the baby 10 min later, without using a speculum, two haemorrhages were found in the left eye only. Assuming that these haemorrhages had been missed due to shadowing on one of the images, repeat RetCam documentation was undertaken and showed extensive haemorrhages confined to the left retina.

This incident was reported to the manufacturer, the UK distributor, and the Medical Devices Agency. No previous incidents have been recorded.

Comment

This premature child had been progressing well under neonatal special care. The infant had no indicators of a bleeding diathesis and no other signs of ocular trauma — direct or indirect. There were no known patient factors that could explain the unique observations in this case. It

is likely that the haemorrhages in this baby arose from ruptured immature retinal vessels, which without smooth muscle, collagen, or elastin layers, are thought to be more susceptible to rupture in the presence of hypoxia and immature central control of circulatory autoregulation.² It would appear that the pressure either of the speculum used to separate the lids or of the RetCam on the globe may have caused retinal bleeding. Unintentional heavy pressure applied to the eye may have been a factor, but retinal haemorrhages caused by blunt trauma to the eye without signs of other damage is unusual and in particular there were no subconjunctival haemorrhages, which would have been expected if this had been the case. RetCam examination is very gentle relative to scleral indentation. This case emphasises how fragile the infant retinal vascular system is and how even minor pressure can cause haemorrhages in infant retinas.

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Sir, High-altitude flight retinopathy

There have been very few reports of ocular complications from commercial high-altitude flights, despite the ever-increasing usage of long distance flying in the modern world. Reported ocular complications include anterior