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Sir, A novel use of ultrasound biomicroscopy

Ultrasonic biomicroscopy (UBM) is an imaging technique that utilizes 50 MHz high-frequency sound waves to produce a high-resolution image. It has multiple applications in ophthalmology to evaluate both anterior segment structures and peripheral posterior segment anatomy. When used with a ClearScan cover, it can image anterior segment angles, angle tumours, peripheral choroidal tumours, ciliochoroidal detachments, and pars planitis, as well as identify intraocular foreign bodies.^{1–5} ClearScan is a sterile, single-use, water-filled bag that covers the end of the UBM probe. A securing collar with a flexible inner ring at the base of the bag creates a watertight seal around the UBM probe. It allows examination of the cornea and structures 10 mm distal. We report the first use of ClearScan and UBM to evaluate periocular structures such as the eyelid and adjacent fleshy areas. We present a novel use of UBM to identify and remove periocular metallic foreign bodies that were prohibiting a patient from undergoing magnetic resonance imaging needed for cavernous sinus mass evaluation.

Our patient is a 56-year-old man who presented with diplopia. On examination he was found to have progressive ophthalmoplegia involving multiple cranial nerves. A computed tomography scan was obtained, which showed multiple small periorbital metallic foreign bodies along the lateral and superior orbital rim, but did not show a cavernous lesion. Radiology recommended further evaluation with MRI for better evaluation of the cavernous sinus. Upon further questioning, the patient, who is a welder, recalled having met with an accident at work involving a piece of metal striking his face. He did

not seek medical attention after the accident. Upon discussion with the patient, he elected to undergo foreign body removal and MRI testing. We elected to try the novel use of ultrasound guidance for intraoperative localization to maximize surgical success.

Prior to removing the foreign bodies, an intraoperative Quantel Aviso 50 MHz UBM in combination with a ClearScan cover were used to locate the foreign bodies. UBM images showed multiple high signal spikes/bright 'dots' underneath the skin, and the incisions were made over those areas (Figure 1). Dense fibrotic, reflective material was extracted from these areas. Subsequent X-rays did not show foreign bodies, and the patient was then able to safely undergo an MRI.

We present this case to the reader to highlight the ease, efficacy, instant feedback, and lower cost of using UBM/ClearScan cover intraoperatively to assist in the excision of periocular foreign bodies. We suggest that the use of UBM/ClearScan cover can further be extended to superficial foreign body removal from any area of the body.

Conflict of interest

Dr Thomas Prager is a paid consultant for ESI, manufacturer of the ClearScan. The remaining authors declare no conflict of interest.

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Figure 1 UBM images showing multiple high signal spikes/bright 'dots' underneath the skin corresponding to the foreign bodies.

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**Sir,
Comment on ‘A review of 145 234 ophthalmic patient episodes lost to follow-up’**

Davis *et al*¹ identify the importance of seamless transfer of outcome information from doctor to reception. In systems theory terms, they have demonstrated how information degrades with time and transfer. Errors generated by degradation lead to more work for staff. This has been termed ‘failure demand’ by systems design critic John Seddon.² He argues that separation of ‘back office’ and ‘front office’ functions is a prime cause of this failure. In the setting of Davis *et al*, the back office is the reception, where the doctor and patient are excluded from meaningful interaction, and the task is essentially purely administrative. This design arises out of a desire to minimise contact time with the customer in service organisations.³ This is because customers are a source of variation, which adversely affects ability to reliably maximise resource utilisation.

The alternative to this resource utilisation-optimised design is to aim for ‘flow optimisation’. This prioritises completing tasks in as few steps as possible. The authors have partly achieved this by ensuring that reception staff always complete the outcome process on the same day. However, a more flow-optimised design would have the outcome process completed within the consultation itself, either by an admin staff member in the room or by a well-designed IT solution completed by the doctor. The immediate objection to this use of staff time is to say that admin staff may be under-utilised and doctors over-utilised. The book ‘This is Lean’⁴ discusses this conflict between resource utilisation and flow optimisation. The argument is made that the most efficient organisations understand this conflict but prioritise flow optimisation because this tends to produce greater efficiencies overall.

The recent publication by the College, ‘The Way Forward’ (<https://www.rcophth.ac.uk/standards-publications-research/the-way-forward/>), highlights service delivery challenges in the context of significant predicted demographic change over the next 20 years. If managers and clinical leaders are to respond appropriately they need to learn to see the underlying principles behind their current service design and to know the alternatives. Learning from studies of service industries can help to achieve this.

Conflict of interest

The author declares no conflict of interest.

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**Sir,
Response to: ‘Comment on A review of 145 234 ophthalmic patient episodes lost to follow-up’**

This letter is helpful and I am grateful to the author for suggesting how flow optimisation is helpful.¹ I would agree that one of the key prospective actions to avoid patients being lost to follow-up is to ensure all patients have an outcome at the end of the clinic. As stated, this requires input from both clinicians and the clerical team on the day of the clinic. For large clinics to have a member of the administrative team in each clinic room is unlikely to be a pragmatic solution; IT may offer more promise. The methodology described in our paper is to provide an efficient process to resolve a backlog of patients who have not been given a follow-up appointment.

Conflict of interest

The authors declare no conflict of interest.

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