

keratotomy, caused by the surgical interruption of the long collagen fibrils embedded in the corneal matrix, which control corneal flexing as do carbon fibre rods in a fibreglass yacht hull.³

Mr Halliday states that "important diurnal fluctuation of refraction occurs in about one third of patients." His support comes from Bourke *et al* who reported on the prospective evaluation of radial keratotomy (PERK) study.⁴ Although increased corneal flexibility is a factor, we now know that many cases of fluctuation are due to inadequate depth of incisions, particularly in high myopes. Incisions in the PERK study were often much too shallow.⁵ Arrowsmith *et al* reported 3% of cases with moderate and 1% with severe fluctuation after six months^{6,7}; Hoffmann reported 6.5% fluctuation long term.⁸ Most fluctuations diminish within three to 12 months.²

Mr Halliday states, "Troublesome glare occurs in about one third of patients and is occasionally disabling," citing Bourke *et al*⁴ and O'Day *et al*.⁹ Most persistent cases are due to faulty placement of incisions and inaccurate determination of the visual axis.^{2,8,10} With correct surgery glare (as opposed to flare) is rare, 1% to 2% after one year, Hoffmann reporting 0.3%.⁸

Your author claims that the procedure is unpredictable. We must distinguish predictability from attaining total correction of myopia. Experienced surgeons can give a high prediction of result based on their own cases and the degree of myopia. However, using Mr Halliday's interpretation of predictability as success, most trials report a success rate of 70% to 90%, defined by the International Society of Refractive Surgeons as the ability to drive legally without glasses or contact lenses. The exhaustive trials of PERK,⁵ Arrowsmith *et al*,¹¹ Deitz *et al*,¹² and Saelson and Marks¹³ confirm this. Neuman *et al* report 93% success in low (-2.00D to -3.00D) myopia, 90% in medium (-3.12D to -4.25D), and 81% in higher (-4.50D to -8.00D).¹⁴ Saelson and Marks reported 95% within 0.50D of emmetropia.¹³ Waring confirms that almost every patient reports a worthwhile improvement.¹⁵

The PERK study, commissioned by the US government in 1981, "established beyond any scientific doubt the relative safety, efficacy and stability of radial keratotomy in the one year period."¹⁶ The paucity of severe late complications after radial keratotomy performed well under rigid guidelines is startling, and several writers confirm the very low incidence of complications.^{8,17}

Radial keratotomy is a deceptively simple procedure but our results are continually improved by refined techniques and careful attention to detail. The Excimer laser is an exciting development that may well supersede radial keratotomy, but no one yet knows the effect of destroying Bowman's membrane, particularly in the visual part of the cornea, and the USA has not yet started its mandatory five year human safety evaluation.^{18,19} Currently the Excimer laser is limited by US law to research only and is not for clinical use. Radial keratotomy is firmly established in the surgical treatment for myopia.

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prospective evaluation of radial keratotomy (PERK) study one year after surgery. *Ophthalmology* 1985;92:177-96.

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- 7 Arrowsmith PN, Sanders DR, Marks RG. Visual, refractive, and keratometric results of radial keratotomy. *Arch Ophthalmol* 1983;101:873-81.
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- 10 Smith RS, Cutro BS. Computer analysis of radial keratotomy. *Contact Lens Association of Ophthalmologists Journal* 1984;3:241-8.
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- 16 Deitz MR. Discussion of PERK. *Ophthalmology* 1985;92:196-8.
- 17 Steele ADM. The case for radical keratotomy. *Optician May* 1986;23-7.
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SIR,—Mr B L Halliday's leading article on refractive surgery will without doubt receive the approval of most ophthalmic surgeons.

It does, however, fail in the tentativeness of its conclusions. In particular, the statement that epikeratophakia is safe followed by the statement that it leaves "the patient's cornea more or less undamaged" is a patent contradiction. A procedure which may require reversal or correction in 10% of cases would not be regarded as safe by many patients who were capable of fully informed consent.

The ethical position that procedures which entail risk should not be carried out on normal patients with normal tissues is one that appears to need constant reaffirmation.

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Faecal peritonitis induced by Picolax

SIR,—Although it was probably reasonable for Messrs R F Phipps and S Fraser (24 October, p 1027) to suggest that the diverticulum perforated secondary to the administration of Picolax in the presence of a distal obstructing carcinoma, it is quite unreasonable on the basis of one case to pronounce that "any patient suffering from diarrhoea or abdominal pain in whom a carcinoma is suspected should undergo flexible sigmoidoscopy before being given Picolax." It is also clearly impracticable to go further and say that when the bowel appears normal on flexible sigmoidoscopy Picolax should be given under medical supervision—that is, while the patient is in hospital for the ensuing examination, for this must mean inpatient preparation.

Our department of radiology has used Picolax as a standard preparation for four to five years; in this time about 5000 patients have undergone double contrast barium enemas, and an appreciable number have had a sigmoid carcinoma with diverticular disease. Patients with malignant and diverticular strictures can be safely examined and our administration of Picolax has not precipitated any major clinical problem. Patients do not seem to complain of pain after the administration of Picolax and this compares favourably to the previously used senna preparations. We are happy

that Picolax is a safe and effective preparation for double contrast barium enema. The clinical situation in a patient who presents with large bowel obstruction is quite different. A barium enema, if required to confirm the diagnosis, should be performed without any preparation.

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SIR,—Mr R F Phipps and Mr S Frazer describe a well recognised complication of using stimulant laxatives for bowel preparation when there is an obstructive lesion of the colon.

We have had a similar experience with a 75 year old woman who took one sachet of Picolax as preparation for a barium enema to investigate her symptoms of weight loss, a change in bowel habit, and the clinical finding of a high rectal mass. Two hours later she developed abdominal pain and vomited. On admission she had a tachycardia and signs of peritonism confined to the left iliac fossa; chest radiography showed no free sub-diaphragmatic gas. Her condition deteriorated and she came to laparotomy. This showed a 7 cm long necrotic rectosigmoid junction with peritonitis and pronounced diverticulosis but no obstructing lesion. A Hartmann's procedure was performed with peritoneal lavage. Histological examination showed necrotic bowel with no evidence of malignancy or vascular disease. She died on the 18th day after operation from a myocardial infarction.

We believe this is the first reported case of large bowel infarction (as opposed to perforation) after the administration of Picolax causing peritonitis.

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SIR,—The risk of perforation during preparation for barium enema examination is very low, a fact testified by Messrs R F Phipps and S Fraser's report. Their sentiment that the safety of large bowel preparation and examination should be maintained by careful preselection of patients is beyond question, but in the presence of diverticular disease flexible sigmoidoscopy may be difficult and may not provide the desired result. The double contrast barium enema offers mucosal as well as luminal information, and preparation with Picolax is thus essential. When the history and examination suggest the possibility of a distal obstructing lesion mucosal examination is not necessary. A limited single contrast examination on the unprepared patient using either dilute barium or water soluble contrast medium will confirm or refute the presence of an obstructing sigmoid lesion. The procedure is easily and rapidly performed and is safe even when there is clinically evident colonic obstruction or pseudo-obstruction. If no obstructing lesion is shown the patient can then have a formal double contrast examination with prior preparation.

Ultrasound or computed tomography may also prove helpful, particularly if a mass is palpable in the left iliac fossa. These two methods can show the presence and nature of a mass and, at the same examination, the presence or absence of intra-hepatic metastatic disease.

Radiological examination of the colon is not limited to double contrast examination preceded by Picolax. Other methods are appropriate depending on the clinical question asked of the radiologist.

1 Larson BC, Kremer FB, Eller AW, *et al*. Quantitated trauma following radial keratotomy in rabbits. *Ophthalmology* 1983;90:660-7.

2 Waring GO. Evolution of radial keratotomy for myopia. *Trans Ophthalmol Soc UK* 1984;104:28-42.

3 Neuman A. *Interpreting PERK. Present and future data, part II*. San Francisco: American Academy of Ophthalmology, 1985.

4 Bourke LB, Cosand BB, Drews C, *et al*. Reported satisfaction, fluctuation of vision, and glare among patients one year after surgery in the prospective evaluation of radial keratotomy study. *Arch Ophthalmol* 1986;104:356-63.

5 Waring GO III, Lynn, MJ, Gelender H, *et al*. Results of