Should nylon corneal sutures be routinely removed?

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Abstract

Three groups of patients who had undergone cataract extraction through a corneal incision closed with 10/0 nylon sutures one, two, and three years previously were recalled to determine the incidence of suture related complications. Broken corneal sutures were found in 87.5% of patients after two years and 90% after three years and were causing symptoms in over half the patients. It is recommended that 10/0 nylon corneal sutures be routinely removed no later than one year after surgery.

Opinion is divided on whether 10/0 nylon corneal sutures need to be removed following cataract surgery. Often removal of the sutures will be required to correct postoperative astigmatism. However, in those cases without significant astigmatism the authors adopted the policy of leaving the sutures in situ on the grounds of saving time in the clinic, avoiding a second refraction for the patient, and avoiding the small risk of a wound leak at the time of removal. The argument for removing all corneal sutures as a routine is that the nylon gradually degrades and some patients may suffer discomfort from the protruding ends of broken sutures.

In this study we aimed to assess the incidence of complications by reviewing patients who had undergone cataract surgery one, two, and three years previously and whose corneal sutures had been left in place.

Material and methods

The records of patients who had undergone cataract extraction with intraocular lens implantation and whose corneal sections had been closed with 10/0 nylon during the months of April to September 1987, April to June 1988, and April to June 1989 were reviewed. In 1987 many patients still had corneoscleral incisions closed with virgin silk, and so it proved necessary to take a longer period in order to include sufficient patients with 10/0 nylon sutures. Those patients who had corneal sutures removed because of astigmatism (Table 1) were excluded. There were thus three groups of patients with corneal sutures in situ who had undergone surgery approximately one, two, and three years ago.

Table 1 Composition of the three groups reviewed

	1989 (1 year)	1988 (2 years)	1987 (3 years)
No of patients with nylon sutures	39	26	32
No of patients who had sutures removed:			
(i) for astigmatism	6	0	6
(ii) for other reasons	3	2	2
Died	2	4	2
Unable to attend for review	1	4	2
Patients reviewed for study	27	16	20

Patients were recalled by the authors and were asked about symptoms which could be related to their corneal sutures. During the examination we looked for signs of giant papillary conjunctivitis and noted the condition of the corneal sutures. We classified our findings into three groups: (i) patients with intact sutures and without symptoms; (ii) patients with broken sutures but without symptoms; (iii) patients with broken sutures and related symptoms.

Results

Table 1 shows the composition of the three groups of patients and Table 2 summarises the findings on examination of these groups. They show that, while over 80% of patients will have intact corneal sutures at one year, this figure will have fallen to 10% by the third year postoperatively. After three years 50% of our patients had symptoms related to their broken sutures. These ranged from a minor foreign body sensation in the eye to discomfort which was sufficiently severe in two cases for the patient to be referred to the eye casualty department.

Suturing techniques changed during the three years covered by this study. In 1987 all patients had interrupted sutures; in 1988 they all had continuous sutures; while in 1989 half were continuous and half interrupted. It is worth noting that three of the four patients with broken sutures and the one patient with symptoms were in the continuous suture group.

Discussion

The complications associated with nylon corneal sutures have been well documented¹⁻³ and are caused by protruding broken ends of the suture. McClellan *et al*⁴ found evidence on scanning electron microscopy of surface disintegration on 10/0 nylon sutures after three months. Rijnveld *et al*⁵ described the tissue reaction to nylon sutures.

In this series there were very few problems associated with nylon corneal sutures during the first year, but thereafter the incidence of symptoms increased. The patients' main complaint was of a recurrent gritty sensation. On examination the broken protruding suture ends were usually associated with marked vascularisation

Table 2 Findings on examination

	1 year	2 years	3 years
Intact sutures	22 (81.5%)	2 (12.5%)	2 (10%)
Broken sutures without symptoms	4 (14.8%)	5 (31.2%)	8 (40%)
Broken sutures with symptoms	1 (3.7%)	9 (56.2%)	10 (50%)
Giant papillary conjunctivitis with broken sutures	0	1 (6.2%)	1 (4%)

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Figure 1 Vascularisation associated with broken interrupted 10/0 nylon corneal sutures.

(Fig 1) and often accumulation of mucus. Two patients with broken sutures had giant papillary conjunctivitis. In all cases the removal of the offending sutures resulted in rapid relief of symptoms and resolution of the signs.

These results reinforce the conclusions of Acheson and Lyons⁶ that 10/0 nylon corneal sutures should be removed within 12 months of surgery. The longer that sutures are left in situ the greater the chance that they will cause symptoms. Moreover, once disintegration of the suture has begun, removal becomes progressively more difficult because the suture tends to break when it is pulled through the tissues.

We recommend that 10/0 nylon corneal sutures should be removed between three months and a year after cataract surgery.

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