A LATERAL SKIN INCISION REDUCES PERIPATELLAR DYSÆSTHESIA AFTER KNEE SURGERY

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In a series of 64 ligamentous injuries of the knee, 33 were explored through a medial incision and 31 through a long lateral incision. Sensibility of the skin, the occurrence of neuromas, and discomfort during kneeling were evaluated three and six years postoperatively. The lateral incisions produced less dysaesthesia, fewer neuromas and less discomfort on kneeling.

Surgical exposure of the knee is commonly made through a medial incision, either single or combined with a lateral incision (Abbott and Carpenter 1945; Hughton 1973). The commonest complication of medial incisions is a lesion of the cutaneous nerves to the patellar and infrapatellar regions. Müller (personal communication 1979; 1983) advocated a long lateral incision with dissection deep to the superficial fascia to preserve the cutaneous branches of the saphenous nerve and the anterior femoral cutaneous nerve, suggesting that this incision should be used even when the deep dissection extended to the medial side of the knee (Fig. 1).

The sensibility of the skin, the frequency of neuromas, and discomfort on kneeling were evaluated following two different approaches to the knee.

PATIENTS AND METHODS

From March 1979 to March 1981, 64 recent ligamentous injuries of the knee were treated surgically by one surgeon (PB). A medial incision, single or combined with a lateral incision was used in 33 cases; a long lateral incision with lateral and medial dissection beneath the superficial fascia was employed in 31 cases.

From March 1979 to December 1980 medial incisions were used in all cases. From January 1981 to the end of the study lateral incisions were used in all cases for cruciate ligament tears, but in knees with isolated medial collateral ligament injury and when there was contusion of the skin in the patellar region, medial incisions were preferred.

The available patients were examined at three years (61) and at six years (63). Dysaesthesia, or anaesthesia, over the patella and the tibial tuberosity was detected by

Table I. Proportions of knees with peripatellar dysaesthesia following medial and lateral incisions

<table>
<thead>
<tr>
<th>Follow-up</th>
<th>Medial</th>
<th>Lateral</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three years</td>
<td>31/31</td>
<td>14/30</td>
<td>p &lt; 5 × 10⁻⁶</td>
</tr>
<tr>
<td>Six years</td>
<td>31/32</td>
<td>7/31</td>
<td>p &lt; 5 × 10⁻⁶</td>
</tr>
</tbody>
</table>

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sharp needle. The length and breadth of the dyseaesthetic area were recorded and the area, approximated to an ellipse, was calculated. Neuroma was diagnosed by point-tenderness and radiating pain over the knee. Discomfort on kneeling was recorded on a visual analogue scale (VAS) (Revill et al 1976).

At the six-year follow-up the medial incisions (Q) resulted in larger dyseaesthetic areas than did the long lateral incisions (●).

Fisher's exact test (2-tailed) was used for comparison of proportions; Student's t-test (2-tailed) for comparison of areas; and the Mann Whitney U test corrected for ties for comparison of VAS.

RESULTS

All the 31 cases with a medial incision, whether single or combined with a lateral incision, had dyseaesthesia or anaesthesia over the patella and the tibial tuberosity at the three-year follow-up. This compares with only 14 of the 30 cases who had single, long lateral incisions (Table I). Skin sensation improved with time especially following lateral incisions; seven of the 14 patients with impaired sensibility three years after lateral incisions had normal sensibility after six years, while only one of the 31 with medial incisions regained normal sensibility (p = 0.0005). At six years the area of reduced sensibility was smaller following lateral incisions (Fig. 2).

Medial incisions produced more neuromas at the six-year follow-up, and the number of knees with neuromas increased between the three-year and the six-year follow-up, especially following medial incisions (Table II).

There was less discomfort on kneeling (Table III), and the visual analogue grading was better following lateral incisions (Fig. 3).

DISCUSSION

The improving sensibility, and the increasing number of neuromas with time are probably signs of reinnervation. After lateral incisions, most of the nerve lesions are

Table II. Proportions of knees with neuromas following medial and lateral incisions

<table>
<thead>
<tr>
<th>Follow-up</th>
<th>Incision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medial</td>
</tr>
<tr>
<td>Three years</td>
<td>7/31</td>
</tr>
<tr>
<td>Six years</td>
<td>14/32</td>
</tr>
</tbody>
</table>

Table III. Proportions of knees with discomfort on kneeling following medial and lateral incisions

<table>
<thead>
<tr>
<th>Follow-up</th>
<th>Incision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medial</td>
</tr>
<tr>
<td>Three years</td>
<td>28/31</td>
</tr>
<tr>
<td>Six years</td>
<td>29/32</td>
</tr>
</tbody>
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probably due to traction; and more gentle dissection might reduce the number of these traction injuries. Cutting of nerve branches is the main reason for the poorer reinnervation after medial incisions (Müller 1983).

That some patients with normal skin sensibility nevertheless experienced discomfort on kneeling may be explained by the presence of subcutaneous fibrosis following the surgical dissection or the original trauma, or may result from the ligamentous injury itself. The patient with the lowest VAS value had a severe contusion of the subcutaneous tissues over the anterior aspect of the knee as well as a posterior cruciate ligament tear. However, the major reason for discomfort on kneeling seems to be the nerve lesions caused by the surgical incision, and medial incisions cause more extensive and longer lasting changes in the skin sensibility than do long lateral incisions.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

REFERENCES


