THE TRANSVERSE POSTERIOR APPROACH TO THE NECK

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Traditional posterior approaches to the neck use a vertical craniocaudal incision which often leaves an unsightly scar. An incision along Langer's transverse lines of tension divides only the cross-fibres of the dermis and we have found the results of this approach encouraging: wound healing was uncomplicated and the cosmetic appearance excellent.

Good exposure is an essential of any surgical incision; equally important, however, are complete healing and an inconspicuous scar.

In 1861 Langer presented his findings on cleavage of the cutis, describing lines of tension in the skin related to the distribution of longitudinal and cross-fibres in the dermis. Incisions across these lines of tension divided all fibres, while those made along them divided the cross-fibres only.

Although Langer made no comment on healing, it has become widely recognised that skin incised along the lines of tension heals well, leaving a relatively inconspicuous scar. Langer's lines run transversely in the neck, curving slightly downwards to run parallel to the mandible. Traditional posterior approaches to the neck involve a vertical craniocaudal skin incision with subsequent dissection following the ligamentum nuchae down to bone. However, for routine posterior neck surgery we favour a transverse skin incision and report our experience.

PATIENTS AND RESULTS

We reviewed a consecutive series of seven patients requiring posterior neck surgery. There were two children and five adults, three of whom had rheumatoid arthritis (two were taking oral steroids). All operations were performed by the senior author through transverse posterior incisions.

Wound healing was uncomplicated in six cases, leaving unobtrusive scars. The seventh (Case 5) was healing well until the sixth day when septicemia developed following pyelonephritis. The wound in his neck then became infected; by the twenty-third day, however, it had healed with an acceptable scar. Details of the seven patients are summarised in Table 1.

DISCUSSION

Cosmesis in posterior cervical surgery is often not considered because it is thought that unsightly scars can be covered by hair. However, longitudinal incisions are frequently conspicuous and ugly (Fig. 1). More important,
wound healing may be delayed; despite meticulous primary wound closure, skin breakdown requiring secondary suture is often seen.

The dermis is composed of a papillary layer and a deeper reticular layer (Warwick and Williams 1973) containing parallel bundles of strong white fibrous tissue (mainly collagen) and yellow elastic fibres. The collagen bundles are arranged longitudinally in the limbs but horizontally in the neck and trunk in 'cleavage lines' corresponding to Langer's lines of tension. Incisions which cross these lines divide the collagen bundles which then contract; it is this contraction which impairs healing. By contrast, transverse incisions following the cleavage lines heal with minimal scar tissue and require less suturing.

Traditional textbooks of operative orthopaedics and spinal surgery suggest only the longitudinal skin incision for posterior neck surgery. Although reference is made by Jeffreys (1980) to a T-shaped incision, to our knowledge there are no reports of a transverse incision. Incisions following the lines of skin tension are advocated for uncomplicated healing and recently have been used in the lumbar spine (Johnson and Kirwan 1983).

We feel that the transverse incision is based on sound surgical principles: it is easy to perform, gives good access, heals well, and results in excellent cosmesis (Fig. 2).

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REFERENCES


### Table I. Clinical details for seven patients requiring posterior neck surgery

<table>
<thead>
<tr>
<th>Case</th>
<th>Age</th>
<th>Clinical features</th>
<th>Pathology</th>
<th>Surgical procedure</th>
<th>Wound healing (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
<td>None</td>
<td>Atlanto-axial instability</td>
<td>Gallie fusion</td>
<td>12</td>
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<tr>
<td>2</td>
<td>9</td>
<td>Weakness and hyper-reflexia</td>
<td>Atlanto-axial instability</td>
<td>Gallie fusion</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>69</td>
<td>Weakness and hyper-reflexia</td>
<td>Rheumatoid arthritis, atlanto-axial subluxation</td>
<td>Decompression of foramen magnum, bone graft from skull to C3</td>
<td>14</td>
</tr>
<tr>
<td>4*</td>
<td>67</td>
<td>Upper limb weakness and paraesthesia</td>
<td>Rheumatoid arthritis with collapse of body of C5, subluxation of C4/5</td>
<td>Decompression and fusion C3-6</td>
<td>14</td>
</tr>
<tr>
<td>5*</td>
<td>57</td>
<td>Neck pain</td>
<td>Atlanto-axial subluxation, disc protrusions at C3-4 and C5-6</td>
<td>Gallie fusion</td>
<td>23</td>
</tr>
<tr>
<td>6</td>
<td>45</td>
<td>Neck pain</td>
<td>Ankylosing spondylitis, atlanto-axial rotatory instability</td>
<td>C1 3 fusion</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>68</td>
<td>Shoulder girdle muscle wasting</td>
<td>Cervical spondylosis, spinal stenosis C3-6</td>
<td>Decompression and fusion C3-6</td>
<td>14</td>
</tr>
</tbody>
</table>

* Patient was taking steroids