External Fixation of Unstable Pelvic Fractures


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Summary. The Hoffmann external fixator was used to stabilize unstable pelvic fractures in 56 patients with multiple injuries. It was applied under general anaesthesia and the dislocated pelvis reduced and secured with a single tie bar. In 16 cases residual dislocation of less than 1.5 cm was noted after the reduction and the reduced position was maintained in 48 out of 51 cases, a minor redislocation occurred in the remaining 3 patients. Few complications could be attributed to the method, infection was noted in one patient, the iliac crest was fractured in one case and an exostosis of the iliac crest occurred in one youth.

Forty-three patients were symptom free with regard to the pelvis at the time of review whereas 5 patients had residual pain and 3 diffuse symptoms.

The technique of application is simple but requires two surgeons at the time of reduction and fixation of the pelvis.

Résultats. Les auteurs ont utilisé le fixateur externe d'Hoffmann pour maintenir une fracture instable du bassin chez 56 blessés présentant des traumatismes multiples. Le fixateur a été mis en place sous anesthésie générale et le bassin fracturé réduit et maintenu par une barre simple. Dans 16 cas, il persistait après réduction une disjonction inférieure à 1,5 cm. La position de réduction s'est maintenue dans 48 des 51 cas, tandis qu'un redéplacement modéré s'est produit dans les 3 autres cas. Il n'y a eu qu'un petit nombre de complications dues à la méthode: une infection, une fracture de la crête iliaque et une exostose de la crête iliaque chez un sujet jeune.

Quarante-trois blessés ne présentaient aucune séquelle en ce qui concerne le bassin lors de l'examen de contrôle, tandis que cinq signalisaient des douleurs résiduelles et trois des troubles divers.

Key words: External fixation, Pelvic fractures

The treatment of unstable pelvic fractures often poses a difficult problem because they frequently occur in association with multiple and severe life-threatening injuries that may require immediate surgical intervention. Nevertheless, early operative fixation of a pelvic and long bone fractures often facilitates the management of the other injuries, and may permit early mobilisation of the patient [6].

Between 1972 and 1976, in our clinic, 56 patients with unstable pelvic fractures were treated with the Hoffmann external fixator. Of these, 52 patients had multiple injuries and were in need of emergency surgery. The method of reduction and fixation of the pelvis and the results of treatment will be presented in this report.

Material

Of the 56 patients, 35 were men and 21 women; 8 were aged between 10 and 19 years, 33 between 20 and 49, and 15 were aged over 50 years at the time of admission. Seventeen had fallen from a height and 38 were victims of road traffic accidents (Table 1).

Table 1. Patients with unstable pelvic fractures treated with Hoffmann's external fixation

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Sex</th>
<th>Mechanism of injury</th>
<th>Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Fall from height</td>
<td>Traffic accident</td>
</tr>
<tr>
<td>10–19</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>20–49</td>
<td>19</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>50–76</td>
<td>10</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>17</td>
<td>38</td>
</tr>
</tbody>
</table>

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Associated injuries were present in most of the patients and these were long bone fractures 53, cerebral injuries 19, urogenital tract injuries 16, intra-abdominal injuries 8, fractures of the spine 15, injuries of the chest 14, and facial bone fractures 8, (Chart 1).

**Diagnosis**

The stability of the pelvic ring was easily tested by grasping the iliac crest on each side close to the anterior iliac spine. An unstable pelvis might be opened or closed by applying stress in either a horizontal or vertical direction. Subsequent X-ray examination gave more information about the position and type of fracture. Urethro-cystography, which gave detailed information of possible soft tissue injuries, was performed in all cases.

Clinical examination for pelvic stability is most important because stable pelvic fractures do not require fixation and may be treated conservatively.