REPORTS a transient hemiplegia in a case of ligature of the common carotid and jugular vein which (owing to the onset of pneumonia) had to be sat for 72 hours after operation. The jugular vein was not tied in any of the three cases done at this hospital. Facilities for arterial suture are seldom available in forward hospitals and most war wounds are not suitable for this procedure. The value of large and repeated transfusions is well illustrated by cases 12 and 13.

Infected cervical wounds heal rapidly by granulation if laid wide open; the resultant scars contract considerably, often leaving very little deformity. If the wounds are closed, however, even with drainage, local infection may take place, and suppuration, with its attendant danger of secondary haemorrhage, may continue for a long time.

COMPARATIVE EFFECTS OF SULPHONAMIDE DRUGS IN MILD BACCILLARY DYSENTERY

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That sulphanilamide has a beneficial effect in bacillary dysentery is now freely accepted, although convincing statistical evidence is not yet available. Sulphaguanidine is commonly regarded as the drug of choice, because it is relatively poorly absorbed from the gut, reaching a high concentration in the intestinal mucosa, and, secondly, because it can be given in large doses over a long period. But convincing statistical evidence is not yet available. Sulphaguanidine is commonly regarded as the drug of choice, because it is relatively poorly absorbed from the gut, reaching a high concentration in the intestinal mucosa, and, secondly, because it can be given in large doses over a long period. But convincing statistical evidence is not yet available.

The incidence of positive cultures was 47%, as follows:

<table>
<thead>
<tr>
<th>Variation</th>
<th>Cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shiga</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Flexner</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Unidentified</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>

In both groups records were kept which would enable a more or less objective estimate of relative severity and of response to treatment to be made. These are analysed in the table. All cases treated within 5 days of the onset with the three drugs, more were treated with sulphanilamide than with the other two. One reason is that the suspensions were lettered A, B and C, and there was a tendency to treat the first patient of each day's admissions with suspension A. The medical officer in charge of the ward changed several times during the observations, and it is possible that the observed absence of side-effects with this suspension may reflect officers not completely familiar with the routine to use this suspension rather more than the others.

DISCUSSION

Total number of cases.—It will be noted that, despite the intention to treat equal numbers of cases in group 1 with the three drugs, more were treated with sulphaguanidine than with the other two. One reason is that the suspensions were lettered A, B and C, and there was a tendency to treat the first patient of each day's admissions with suspension A. The medical officer in charge of the ward changed several times during the observations, and it is possible that the observed absence of side-effects with this suspension may reflect officers not completely familiar with the routine to use this suspension rather more than the others.

Severity.—The suggested criteria of the severity of each group were:

1. Relative proportions of BE and IE cases.
2. Duration of diarrhoea before admission.
3. Number of stools in the 24 hours before admission.

Maximal pyrexia was generally present on admission or soon afterwards, and thus is mainly an indication of severity. The duration of pyrexia after admission should be expected to be influenced by treatment, and is therefore more difficult to interpret. Judged by these criteria, groups 1 and 2 each seem as homogeneous as one can expect clinical material to be.
The analysis of cases

<table>
<thead>
<tr>
<th>Cases—Total</th>
<th>Sulphaguanidine</th>
<th>Sulphapyridine</th>
<th>Sulphanilamide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group 1</td>
<td>June—Nov.</td>
<td>47-9 g. in 48 hr.</td>
</tr>
<tr>
<td>Bacillary exudate</td>
<td>117</td>
<td>76</td>
<td>81</td>
</tr>
<tr>
<td>Indefinite exudate</td>
<td>34</td>
<td>29</td>
<td>21</td>
</tr>
</tbody>
</table>

**Severity—**

- Av. duration before admis. (days) | 2-0 | 2-2 | 2-2 | 3-5 | 2-7
- Av. no. of stools before admis. | 14 | 14 | 13 | 13 | 15
- Feces % | 73 | 64 | 65 | 60 | 71
- Av. max. recorded | 100-0 | 99-6 | 99-9 | 100-1 | 100-3
- Av. dur. after adm. (days) | 1-2 | 1-3 | 1-7 | 1-3 | 1-5

**Results—**

- Av. day after admis. on which stools first formed | 4-8 | 4-1 | 4-4 | 5-0 | 4-6
- Av. days in hospital | 11-2 | 9-3 | 9-9 | 10-5 | 8-7
- Cases given further treatment | 11 | 1 | 3 | nil |
- Complications of treatment | nil | Vomiting 4th hour | nil | nil | Rash 1

Percentages in parentheses.

- Bacillary exudate. Contains more than 50% of polymorphonuclear neutrophils.
- Indefinite exudate. Contains less than 50% of polymorphonuclear neutrophils.

**Summary**

The relative therapeutic effects of sulphaguanidine, sulphapyridine, and sulphanilamide in bacillary dysentery are compared. Sulphaguanidine is found more beneficial than the other two drugs, especially in severe cases. The side-effects of each drug are also discussed, with sulphanilamide being noted for its minimal side-effects. The findings are supported by observations on 358 cases of mild bacillary dysentery.
These three drugs were equally efficacious, and the only advantage of sulphanilamide was that it very seldom caused unfavourable side-effects.

I am indebted to the medical officers and sisters at various times in charge of the ward in which the patients in group 1 were treated, for their cooperation; and to Major John Diek, RAMC, for the laboratory data.

REFERENCES


TREATMENT OF FRACTURES OF THE FEMORAL AND TIBIAL SHAFTS IN THE SAME LIMB

V. H. Ellis, F R C S
H. H. Langston, F R C S
J. S. Ellis, M Chir, F R C S
SURGEONS TO AN ORTHOPÆDIC UNIT, EMS

SURGEONS with experience of treating fractures have usually their own personal views on the treatment of the more common injuries. Guidance in the management of the rarer fractures is given adequately in a number of textbooks. In cases, however, where treatment is complicated by multiple associated injuries this guidance is often lacking, because few surgeons have enough experience of the less common combinations of lesions to give instruction in their treatment; nor can much assistance be obtained from the literature.

In some cases the association of multiple fractures is so common as to be thought typical of some particular injury; and sometimes, as in the combination of fractures of the os calcis and lumbar spine, treatment of the one injury is not seriously affected by the presence of the other. When, however, the injuries occur in the same limb their association may present difficult problems. The treatment of two such fractures is very much more than twice as difficult as that of either alone.

We propose here to deal with the combination of fractures of the shaft of the femur and of the tibia and fibula in the same limb. We have had the advantage of obtaining the records from another EMS orthopaedic unit and have studied these with the records of cases under our care. Of 200 fractures of the shaft of the femur, 16 had an associated tibial shaft fracture on the same side.

The table will give some idea of the difficulties and of the comparatively unsatisfactory results of treatment. Amputation was required in 3 cases; in only 3 did the treatment take no account of the maintenance or early restoration of knee movement; and in 10 operations for non-union the knee was not seriously affected by the presence of an associated tibia. In 10 cases the knee was lost because the injuries were of the same side. The treatment of two fractures is more than twice as difficult as that of either alone.

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FOUR PRINCIPLES

The aim of any fracture treatment must be the fullest possible restoration of function. Four general principles may be outlined.

1. The most important aim in the treatment of a fracture of the shaft of the femur is that there shall be a useful range of movement at the knee. When it comes to assessing the end-result, minor degrees of shortening or angulation are secondary in importance to stiffness of the knee. The knee that has lost its movements presents far greater difficulties to the surgeon, and is a far greater disability to the patient, than most other results of faulty treatment. Any method of treatment taking no account of the maintenance or early restoration of knee movement must be considered with suspicion.

2. Delay in union or the establishment of non-union is more likely in the tibia than in the femur. This applies not only to closed fractures, but to open fractures also. A method of treatment that tends to delay union will be " felt " more by the tibia than by the femur. Distraction and lack of immobilisation are more important to guard against in the tibia than in the femur.

3. On the other hand ultimate union in the tibia is practically certain. A well-timed and well-performed bone-grafting operation can almost be said to guarantee union in the tibia, whereas operation for non-union in the femur is both more difficult and less sure of success.

4. Lastly, infection is of more evil significance in the femur than in the tibia. The problem presented by the septic femoral fracture, with abscesses pocketing deep in the muscles and tracking up into the buttock, cannot be compared with that met with in the superficial and accessible tibia with its less muscular relations. The effect of sepsis on muscle adherence, and consequently on knee movements do not require further elaboration.

POSSIBLE COMBINATIONS

With these general principles in mind we will now consider the four possible combinations of simple and compound fractures.

**Both fractures simple.**—In our opinion treatment here is clear-cut and easily defined. On the principle of " forgetting " one fracture, it would seem there is the simplest possible indication for plating the tibial fracture. This done, the femoral fracture can be treated as if it existed alone, traction being applied by a tibial pin. Knee and ankle movements can be maintained almost from the start.

**Femur compound, tibia simple.**—If the case is seen early, if the compound element is minimal, or if the wound is both little infected and remote, our policy is simple: to treat the tibial fractures with abundant percutaneous fixation by Thomas's pins, and to treat the femoral fracture by two pins, one in the femoral shaft and one in the os calcis, separate traction being applied to the two parts. This last may be done with great ease if the compound fragment is pulled down by the tibial pin, and the upper knee is strapped down to a Thomas's pin. Traction is increased during the first days of treatment, the tibial pin being left in slight abduction. When the fracture is well established, the lower fracture should be reduced to as near an anatomical position as possible, and the upper fracture treated as if it existed alone. When union is established, the Thomas's pin is removed and the knee allowed to move. An alternative is to treat the tibial fractures by plates, and the lower fracture as if it existed alone.

**Femur simple, tibia compound.**—If the compound tibial element is minimal, or if the wound is not infected, or if the joint is uninjured, treatment is simple. The tibial fractures are reduced and treated in the normal way, the lower fracture being reduced to as near an anatomical position as possible. The femoral fractures are treated as if they existed alone, with slight abduction of the tibial pin. When union is established the lower fracture is left alone, and the tibial pin removed, the knee being allowed to move. An alternative is to treat the tibial fractures by plates, and the lower fracture as if it existed alone.

**Both fractures compound.**—In the compound femoral fracture, with abscesses pocketing deep in the muscles and tracking up into the buttock, the effect of sepsis on muscle adherence, and consequently on knee movements do not require further elaboration.

ANALYSIS OF CASES

<table>
<thead>
<tr>
<th>Sex and age</th>
<th>Femur Tibia</th>
<th>Tibia plate</th>
<th>Tibia graft</th>
<th>Femur plate</th>
<th>Union</th>
<th>Knee range</th>
<th>Time of union (weeks)</th>
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</thead>
<tbody>
<tr>
<td>M 22</td>
<td>S</td>
<td>S</td>
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<td>—</td>
<td>180–60°</td>
<td>16</td>
<td>16</td>
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<tr>
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<td>—</td>
<td>180–60°</td>
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<td>73</td>
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<tr>
<td>P 15</td>
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<td>—</td>
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</tr>
<tr>
<td>M 33</td>
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<td>Yes</td>
<td>Yes</td>
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<td>—</td>
</tr>
<tr>
<td>M 23</td>
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<td>—</td>
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<td>—</td>
</tr>
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<td>M 24</td>
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<td>—</td>
<td>—</td>
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<td>UT</td>
<td>—</td>
</tr>
<tr>
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<td>—</td>
<td>—</td>
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<tr>
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<td>27</td>
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</tr>
<tr>
<td>M 37</td>
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<tr>
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