Introduction:
Osteopetrosis (Albers-Schwan Bergs disease) is a rare hereditary disease, characterized by increased bone density due to decreased osteoclastic activity, which leads to decreased bone resorption and cause thickening and widening of cortices and narrow medullary canal. It is of two types.

Infantile or malignant type.
Adult or benign type.

Adult osteopetrosis is usually presented with hip and proximal femoral fractures. These fractures can be treated by conservative methods but complications like nonunion, mal union are common. Internal fixation can be done but it is challenging as medullary canal is narrow, bone is hard due to increased density and can leads to breakage of drill bit due to high friction and poor drilling.

Methodology:
This prospective study was conducted from March 2015 to February 2017 at Orthopedic department of Muhammed Medical College Hospital, Mirpurkhas. Patients, with sub trochanteric fractures of femur having osteopetrosis, during study period were registered as per following inclusion and exclusion criteria.
Inclusion criteria:
1-All the patients with sub trochanteric femoral fractures with osteopetrosis.
2-Closed fractures.
3-Adult patients of either gender between the age of 20 to 60 years.

Exclusion criteria:
1-Patients other than osteopetrosis.
2-Open fractures.

Results:
During period of study, 60 patients meet inclusion criteria. All patients were investigated and managed, as per routine protocol of the hospital, within one week of the admission. There were 42 (70%) males and 18 (30%) females. Mean age of the patients was 42 years, the commonest age (41.70%) group was aged between 31-45 years. All the patients had minimal injury due to fall on ground. The injury sustained over right side in 70% of the cases. Post operatively all patients were mobilized with crutches within 1st week, partial weight bearing in 3rd week and full weight bearing in 6 weeks. The check x rays done repeatedly to confirm union. Among all patients only 1 female patient developed superficial surgical site infection which responded with the change of the antimicrobial agent. The overall satisfactory union was achieved in 58 (96.67%) patients, one patient developed malunion and only patients had nonunion.

Table 1: Age distribution:

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Number of patients</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>31-45</td>
<td>25</td>
<td>41.66</td>
</tr>
<tr>
<td>40-60</td>
<td>20</td>
<td>33.34</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2: Anatomical site of fracture

<table>
<thead>
<tr>
<th>Side</th>
<th>Number of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right</td>
<td>42</td>
<td>70</td>
</tr>
<tr>
<td>Left</td>
<td>18</td>
<td>30</td>
</tr>
</tbody>
</table>

Table 3: Gender distribution

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>42</td>
<td>70</td>
</tr>
<tr>
<td>Female</td>
<td>18</td>
<td>30</td>
</tr>
</tbody>
</table>

Table 4: Criteria for union

| Excellent | 80 | 100 | Satisfactory |
| Good      | 70 | 79  | Satisfactory |
| Fair      | 60 | 69  | Satisfactory |
Post-operative results after 8 weeks, AP-View.

Pre-operative view of Sub-trochanteric fracture of femur.

Post-operative result after 8 weeks, Lateral view.

Post-operative AP view: Fracture fixed with DCP.

Case # 2
Discussion:
Osteopetrosis is a rare disorder. It is benign in adult form and usually presents with fracture of proximal femur after minimal injury. The osteopetrosis is characterized by increased density of bone and narrow medullary canal due to osteoclasts dysfunction. The fracture in osteopetrosis can be treated conservatively but nonunion and malunion are common complications. Internal fixation of these fractures is challenging and difficult job for orthopedic surgeons. As medullary canal is narrow, so insertion of intramedullary nail is not possible. Some people used Steinmann pin, but results are not satisfactory. Insertion of DCS and DHS is very difficult because bone is too hard. We used DCP for the treatment of these fractures. Although drilling is difficult and there are chances of breakage of drill bit, but we have achieved good to excellent results with this implant with minimal complication. The overall results were 96%.

Conclusion:
The management of sub trochanteric fracture femur with osteopetrosis can best be treated with DCP if due care is observed.

References:


