RESULTS IN SACRUM PRIMARY TUMORS

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• En bloc sacrectomy: tumor resection with wide margin
• Sacrum primary tumors primarios are rare
• Surgery is the only opcion of cure
• Most of them are quimio and radioresistent
• Late diagnosis
• Big shape: increases tecnic dificulties.
• High rate of complications.

STUDY OBJECTIVES

• Tumor type
• Surgery classification
• Surgery technique
• Functional results
• Complications
• Recurrence
• Survival
• Observacional and retrospectiv study.
• 16 patients (9 men, 7 women)
• 46 years average (28-80).
• Follow up = 7 years (1-13)
• Sacrectomy in sacrum primary tumor
• Since 1997-2012.
• Hospital Universitario Dr. Peset de Valencia.
• Hospital Clínico Universitario de Valencia.
### TUMOR TYPE

<table>
<thead>
<tr>
<th>PRIMARY TUMOR</th>
<th>FREQUENCY</th>
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<tbody>
<tr>
<td>Cordoma</td>
<td>13</td>
</tr>
<tr>
<td>Hemangiosarcoma</td>
<td>1</td>
</tr>
<tr>
<td>Leiomiomasarcoma</td>
<td>1</td>
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<tr>
<td>Ependimoma</td>
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### SURGERY CLASSIFICATION (FOURNEY)

**Central tumor**
- Distal: S4: 0
- Middle line: S3: 3
- Proximal: S2: **5**
- Total: S1: **4**
- Hemicorporectomy: 1

**Excentric tumor**
- Distal: S3-S4: 0
- Proximal: S2: **2**
- Sacroiliac: 1
## SACRECTOMY

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>TOTAL: 7</td>
<td>5 double aproach</td>
</tr>
<tr>
<td></td>
<td>2 posterior aproach</td>
</tr>
<tr>
<td>SUBTOTAL: 9</td>
<td>8 double aproach</td>
</tr>
<tr>
<td>(below S1)</td>
<td>1 posterior aproach</td>
</tr>
</tbody>
</table>

- Important oncological resection margins (buttocks)
- Location and tendon resection piriformis muscle: local recurrence
- Blunt dissection searching the plane previous
- Location roots to sacrifice and sac section
INSTRUMENTATION

Techniques used:
- Galveston modified
- Bars between iliac
- Technical dual iliac screw bar
- Closed loop Technique: U-shaped bar

• Indications for vertebropelvic stabilization
  – Total sacrectomy
  – Unilateral resection sacroiliac joint
  – Subtotal resection with more than 50% both sacroiliacs joints

TOTAL (7)
3 Double lumbar-iliac bar
3 Double bar "U" connectors
1 No double instrumentation

SUBTOTAL (9)
3 Bars between iliac
6 Not instrumentation
### Functional Outcome

<table>
<thead>
<tr>
<th>Neurological Function</th>
<th>PostQx</th>
<th>Last Follow Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gait disturbance Alteration sphincters</td>
<td>9</td>
<td>9/16 Improvement</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>10/16 bladder catheter</td>
</tr>
<tr>
<td>Foot drop (iatrogenic)</td>
<td>10</td>
<td>5/16</td>
</tr>
</tbody>
</table>

### Complications

- Local infection / wound dehiscence 8 (50%)
- Deep infection 5 (31%)
- Dehiscence rectal stump (Hartmann) 1
- Urinary tract infection 16
- Septic shock (late postop, focus urinal) 1
- Break reconstruction material 2 (12.5%)
RECURRENCE AND SURVIVAL

Contaminated margins 3

Relapse: 3

Metastases: 2

Deaths: 3 (2 due to tumor progression and 1 due to septic shock)

Survival: 84% at 5 years
CONCLUSIONS

- EN BLOCK SACRECTOMY TO BE HEALING SACRED PRIMARY TUMORS.
- TECHNICALLY DIFFICULT PROCEDURE.
- AGGRESSIVE WITH HIGH RATE OF MORBIDITY
- THE NEUROLOGICAL DEFICIT AND SPHINCTERIC DISORDERS ARE TOLERATED MEDIUM-LONG TERM.
- RECONSTRUCTION IS NECESSARY IN CASE OF TOTAL SACRECTOMY AND DEBATABLE IN SUBTOTAL
- IS NOT CLEAR THE BEST SYSTEM STABILIZATION
The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

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