Routine Postoperative CT is not Helpful after Elective Craniotomy

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No conflicts of interest.
**BACKGROUND**

- **Common practice:**
  - Routine postoperative CT after elective craniotomy
  - Training perspective: „patients with any new deficit need immediate imaging“

- **Published data**
  - Necessity for routine postop imaging is disputable
  - Correlation between postoperative deficits and imaging abnormality has been reported

- **Objective**

  *Value of routine postoperative CT in a large retrospective cohort of elective craniotomies.*
METHODS

• Retrospective design
  ▪ Elective craniotomy
  ▪ Adults (>18 years)
  ▪ Routine CT (within 48 h)
  ▪ Postop hematoma
  ▪ Presence of Seizures
  ▪ Need for revision

• Classification of hematoma

<table>
<thead>
<tr>
<th>Klassifikation</th>
<th>Hämato im cCT</th>
<th>RR-Spitze (mmHg)</th>
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</thead>
<tbody>
<tr>
<td>0 =</td>
<td>No hematoma</td>
<td>no blood pressure event</td>
</tr>
<tr>
<td>1 =</td>
<td>Border of resection</td>
<td>syst. blood pressure &gt; 160</td>
</tr>
<tr>
<td>2 =</td>
<td>Resection cavity</td>
<td>syst. Blood pressure &gt; 200</td>
</tr>
<tr>
<td>3 =</td>
<td>Space occupying hematoma</td>
<td></td>
</tr>
</tbody>
</table>
RESULTS

- 660 patients
- Male:female = 1 : 1.25
- Main indication: tumor: 60%
ERGEBNISSE

• Findings:
  ▪ 3.5 % (n = 23) space occupying lesion
  ▪ Revision surgery: 11 out of 23 patients
  ▪ Correlation between extent of hematoma and revision surgery! (p< 0.001)

  postop. course: 11 patients suffering neurological worsening
  Timepoint: 11 patients prior to routine imaging
  Timepoint cCT: 9 patients emergency imaging
    2 patients on pod1:
      ▪ Revision surgery 6 / 10 days after initial surgery
      ▪ New deficit prior to CT

  → Pathological changes of all patients in need of revision surgery would have been identified without routine imaging!

  ▪ 12 out of 23 patients with no need for revision surgery.
ERGEBNISSE

• Revision surgery:
  ▪ 2,7 % (n = 18) patients
    ▪ 7 patients: NO space occupying hematoma
      ▪ 4 patients: revision surgery for other reasons than hematoma
        ▪ 2 patients: ICP probe
        ▪ 1 patient: Ventriculostomy
        ▪ 1 patient: unnoticed opening of the frontal sinus
    ▪ 3 patients: revision surgery needed days after surgery
      ▪ Neurological worsening prior to second CT
        → all pathological findings absent in routine CT
  ▪ 1,3 % (n = 9) seizures
    ▪ Revision surgery: 3 patients (p-Wert = 0,007)
      → not for intracranial hematoma
More selective use of postoperative imaging reduces exposition to ionizing radiation

All subjects in need of hematoma evacuation showed new and unexpected neurological deficits

→ Routine postoperative CT in patients with uneventful weaning is not contemporary