Surgery versus Mohs for facial Basal Cell Carcinoma—10 years follow-up

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Content

• Why a randomized controlled trial?
• Short term results
• 10 year follow-up data
• Limitations
Mohs

Figure 1. Dr. Mohs and assistants in 1954.

CHEMOSURGERY
A MICROSCOPICALLY CONTROLLED METHOD OF CANCER EXCISION

FREDERIC E. MOHS, M.D.
MADISON, WIS.

Archives of surgery 1941
720 BCCs
Recurrences of primary BCC 3.6%; recurrences of recurrent BCC 6.5%

Recurrence primary BCC 0-6.5%
Recurrence recurrent BCC 4.8-12%
Mohs versus surgical excision; a RCT

Why?

Acta Derm Venereol (Stockh) 1999; 79: 2–3
FOR DEBATE

The Case against Micrographically Controlled Skin Surgery
SAM SHUSTER
Medical School, University of Newcastle upon Tyne, United Kingdom

BRITISH JOURNAL OF PLASTIC SURGERY

Mohs Surgery of basal cell carcinoma—a critical review
C. M. Lawrence
Dermatology Department, Royal Victoria Infirmary, Newcastle, UK

Technique may be superior to existing methods and offer all the advantages its exponents claim. However, before it can become generally accepted these advantages will have to be demonstrated by controlled prospective clinical studies.
Mohs versus surgical excision
Mohs versus surgical excision; a RCT

408 primary BCC en 204 recurrent BCC

• Primary: facial BCC at least 1 cm
  – in H-zone
  – aggressive histopathological subtype

• Recurrent: first or second facial BCC

All high risk facial BCC
Mohs versus surgical excision; a RCT

- Both procedures first excision 3 mm margin
- Incomplete excision → second excision with 3 mm margin
- Second incomplete excision → Mohs
Primary BCC

MMS = Mohs' micrographic surgery
SE = surgical excision
pt = patient
pts = patients

486 pBCC (443 patients) assessed for eligibility
406 pts with 1 pBCC
32 pts with 2 pBCCs
4 pts with 3 pBCCs
1 pt with 4 pBCCs

78 pBCC (69 pts) not randomised

408 pBCC (374 pts) randomised

204 pBCC (199 pts) allocated to MMS
6 pts did not receive treatment
2 deceased
2 refused
1 moved away
1 other diagnosis
198 pBCC treated with MMS

204 pBCC (199 pts) allocated to SE
5 pts did not receive treatment
3 SCC
1 recurrence
1 ear amputation
199 pBCC treated with SE
<table>
<thead>
<tr>
<th></th>
<th>SE (n=204)</th>
<th>MMS (n=204)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forehead/temple</td>
<td>65 (32%)</td>
<td>53 (26%)</td>
</tr>
<tr>
<td>Cheek/chin</td>
<td>16 (8%)</td>
<td>19 (9%)</td>
</tr>
<tr>
<td>Nose/paranasal</td>
<td>62 (30%)</td>
<td>69 (34%)</td>
</tr>
<tr>
<td>Lips</td>
<td>8 (4%)</td>
<td>14 (7%)</td>
</tr>
<tr>
<td>Periocular</td>
<td>16 (8%)</td>
<td>16 (8%)</td>
</tr>
<tr>
<td>Ears</td>
<td>16 (8%)</td>
<td>9 (4%)</td>
</tr>
<tr>
<td>Periauricular</td>
<td>21 (10%)</td>
<td>24 (12%)</td>
</tr>
<tr>
<td><strong>Facial H zone</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>196 (96%)</td>
<td>181 (89%)</td>
</tr>
<tr>
<td>No</td>
<td>8 (4%)</td>
<td>20 (10%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td><strong>Histopathological type</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-aggressive</td>
<td>116 (57%)</td>
<td>96 (47%)</td>
</tr>
<tr>
<td>Aggressive</td>
<td>88 (43%)</td>
<td>105 (52%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean diameter (mm [SD])</td>
<td>15.97 (8.17)</td>
<td>13.76 (6.43)</td>
</tr>
<tr>
<td>Mean area (cm² [SD])</td>
<td>1.77 (2.13)</td>
<td>1.28 (1.36)</td>
</tr>
</tbody>
</table>

*Table 1: Tumour characteristics of primary basal-cell carcinomas*
Treatment characteristics pBCC

- 1 in 5 (18%) incomplete after 1 excision
- 2% incomplete after 2 excisions
- Mean number of Mohs stages; 1.77
- Defects were significantly larger in patients with multiple excisions compared to defects in patients with multiple Mohs stages
- 3.5% in the primary group was finally treated with MMS instead of SE
Recurrent BCC

246 rBCC (233 patients) assessed for eligibility
- 222 pts with 1 rBCC
- 10 pts with 2 rBCCs
- 0 pts with 3 rBCCs
- 1 pt with 4 rBCCs

42 rBCC (42 pts) not randomised

204 rBCC (191 pts) randomised

102 rBCC allocated to MMS
- 2 pts did not receive treatment (deceased)
- 100 rBCC treated with MMS

102 rBCC allocated to SE
- 0 pre-treatment drop-outs
- 102 rBCC treated with SE
<table>
<thead>
<tr>
<th></th>
<th>SE (n=102)</th>
<th>MMS (n=102)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forehead/temple</td>
<td>46 (45%)</td>
<td>38 (37%)</td>
</tr>
<tr>
<td>Cheek/chin</td>
<td>10 (10%)</td>
<td>12 (12%)</td>
</tr>
<tr>
<td>Nose/paranasal</td>
<td>29 (28%)</td>
<td>23 (23%)</td>
</tr>
<tr>
<td>Lips</td>
<td>1 (1%)</td>
<td>6 (6%)</td>
</tr>
<tr>
<td>Periocular</td>
<td>5 (5%)</td>
<td>6 (6%)</td>
</tr>
<tr>
<td>Ears</td>
<td>4 (4%)</td>
<td>8 (8%)</td>
</tr>
<tr>
<td>Periauricular</td>
<td>7 (7%)</td>
<td>9 (9%)</td>
</tr>
<tr>
<td><strong>Facial H zone</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>81 (79%)</td>
<td>85 (83%)</td>
</tr>
<tr>
<td>No</td>
<td>21 (21%)</td>
<td>17 (17%)</td>
</tr>
<tr>
<td><strong>Histopathological type</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-aggressive</td>
<td>52 (51%)</td>
<td>41 (40%)</td>
</tr>
<tr>
<td>Aggressive</td>
<td>49 (48%)</td>
<td>60 (60%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean diameter (mm [SD])</td>
<td>19-42 (12.05)</td>
<td>17-86 (10.67)</td>
</tr>
<tr>
<td>Mean area (cm² [SD])</td>
<td>2-70 (5.06)</td>
<td>1.97 (2.71)</td>
</tr>
</tbody>
</table>

*Table 2: Tumour characteristics of recurrent basal-cell carcinomas*
Treatment characteristics rBCC

• 1 in 3 (32%) incomplete after 1 excision
• 8 % incomplete after 2 excisions
• Mean number of Mohs stages; 2.00
• 17 % in the recurrent group was (finally) treated with MMS instead of SE
Mohs versus surgical excision; RCT 5 year results

• Primary BCC
  – No significant difference in recurrence rates
    (4.1 vs 2.5 %)

• Recurrent BCC
  – Significantly more recurrences following SE
    (2.4 vs 12.1%)

Smeets N et. al. Lancet 2004; 364: 1766-72
Long term follow-up (10 year)
10 year follow-up primary BCC

- 40% died
- 35% in follow-up
4.4 % recurrences following MMS
12.2 % recurrences following SE
P = 0.10
Nov; 50(17): 3011-20
10 year follow-up recurrent BCC

- 100 rBCC treated with MMS
  - 87 rBCC at 24 months follow-up
  - 64 rBCC at 72 months follow-up
  - 48 rBCC at 96 months follow-up
- 0 recurrent tumours
- 13 lost to follow-up
- 11 deceased
- 1 moved away
- 1 other cause

40% in follow-up

- 3 recurrent tumours
- 12 lost to follow-up
- 8 deceased
- 3 unknown cause
- 1 other cause

32% died

- 102 rBCC treated with SE
  - 87 rBCC at 24 months follow-up
  - 69 rBCC at 48 months follow-up
  - 54 rBCC at 72 months follow-up
  - 36 rBCC at 120 months follow-up
- 1 recurrent tumour
- 14 lost to follow-up
- 6 deceased
- 3 unwilling
- 5 unspecified

- 0 recurrent tumours
- 9 lost to follow-up
- 1 deceased
- 1 unspecified
- 7 other cause

- 0 recurrent tumours
- > 120 months
3.9 % recurrences following MMS
13.5 % recurrences following SE
P= 0.023
Limitations of this RCT

- Patients not willing to participate
- Standard surgical margin of 3 mm
- Large number lost to follow-up
- Cross-overs (3.5% in the pBCC and 17% in the rBCC group) ⇒ intention-to-treat analysis
Mohs surgery versus conventional excision: 10 year follow-up conclusion

• Fewer recurrences following Mohs surgery
  • 4.4 vs 12.2% for primary BCC
  • 3.9 vs 13.5% for recurrent BCC

• A substantial proportion of recurrences occurred after more than 5 years post-treatment: 56% for pBCC and 14% for rBCC
Evidence- versus expert-based


Ad Hoc Task Force: Suzanne M. Connolly, MD (Chair), Diane R. Baker, MD, Brett M. Coldiron, MD, Michael J. Fazio, MD, Paul A. Storrs, MD, Allison T. Vidimos, RPh, MD, Mark J. Zalla, MD, Jerry D. Brewer, MD, Wendy Smith Begolka, MBS

Ratings Panel: Timothy G. Berger, MD, Michael Bigby, MD, Jean L. Bologna, MD, David G. Brodland, MD, Scott Collins, MD, Terrence A. Cronin, Jr, MD, Mark V. Dahl, MD, Jane M. Grant-Kels, MD, C. William Hanke, MD, George J. Hruza, MD, William D. James, MD, Clifford Warren Lober, MD, Elizabeth I. McBurney, MD, Scott A. Norton, MD, MPH, Randall K. Roenigk, MD, Ronald G. Wheeland, MD, and Oliver J. Wisco, DO

Scottsdale and Tucson, Arizona; Lake Oswego and Tigard, Oregon; Cincinnati and Cleveland, Ohio; Sacramento and San Francisco, California; Palos Heights and Schaumburg, Illinois; Florence, Kentucky; Rochester, Minnesota; Boston, Massachusetts; New Haven and Farmington, Connecticut; Pittsburgh and Philadelphia, Pennsylvania; Miami and Tampa, Florida; Indianapolis, Indiana; Chesterfield, Missouri; New Orleans, Louisiana; Washington, District of Columbia; and Biloxi, Mississippi
### B. Primary aggressive BCC (healthy or immunocompromised patients)

<table>
<thead>
<tr>
<th>Indication</th>
<th>Size, cm</th>
<th>Area H</th>
<th>Area M</th>
<th>Area L</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>≤0.5</td>
<td>A (8)</td>
<td>A (8)</td>
<td>U (6)</td>
</tr>
<tr>
<td>5</td>
<td>0.6-1</td>
<td>A (9)</td>
<td>A (8)</td>
<td>A (7)</td>
</tr>
<tr>
<td>6</td>
<td>1.1-2</td>
<td>A (9)</td>
<td>A (9)</td>
<td>A (8)</td>
</tr>
<tr>
<td>7</td>
<td>&gt;2</td>
<td>A (9)</td>
<td>A (9)</td>
<td>A (8)</td>
</tr>
</tbody>
</table>

### C. Primary nodular BCC (healthy patients)

<table>
<thead>
<tr>
<th>Indication</th>
<th>Size, cm</th>
<th>Area H</th>
<th>Area M</th>
<th>Area L</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>≤0.5</td>
<td>A (7)</td>
<td>A (7)</td>
<td>I (3)</td>
</tr>
<tr>
<td>9</td>
<td>0.6-1</td>
<td>A (8)</td>
<td>A (8)</td>
<td>I (3)</td>
</tr>
<tr>
<td>10</td>
<td>1.1-2</td>
<td>A (9)</td>
<td>A (8)</td>
<td>U (6)</td>
</tr>
<tr>
<td>11</td>
<td>&gt;2</td>
<td>A (9)</td>
<td>A (9)</td>
<td>A (7)</td>
</tr>
</tbody>
</table>

**Areas of body**

- **Area H**: “Mask areas” of face (central face, eyelids [including inner/outer canthi], eyebrows, nose, lips [cutaneous/mucosal/vernilion], chin, ear and periauricular skin/sulci, temple), genitalia (including perineal and perianal), hands, feet, nail units, ankles, and nipples/areola.
- **Area M**: Cheeks, forehead, scalp, neck, jawline, preitial surface.
- **Area L**: Trunk and extremities (excluding pretibial surface, hands, feet, nail units, and ankles).
Evidence based;

Less recurrences following Mohs vs standard excision in high risk facial basal cell carcinoma