THE FACE AND THE MARGINAL MANDIBULAR NERVE

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General anatomy-Portions

- BRAIN
- INTRACRANIAL: 23-24 mm
- MEATAL: 8-10 mm
- LABYRINTHIC: 3-5 mm
- TYMPANIC: 8-11 mm
- MASTOID: 10-14 mm
- EXTRATEMPORAL: Δ
Davis et al., /Miehlke, Katz/

1. No anastomosis between TF & CF divisions
2. TF anastomosis only
3. Single anastomosis between TF & CF divisions
4. Combination of type II. & III.
5. Double anastomosis between TF & CF divisions
6. Complex, multiple anastomosis

TZAFETTA, TERZIS

• Mean number of the branches at the anterior margin of the parotid gland: 7,7 +/- 1,05

• Mean number of the branches distally: 13,8 +/- 1,81

• TEMPORAL: 2,8 +/- 1,81
• ZYGOMATIC: 4,4 +/- 1,34
• BUCCAL: 3,2 +/- 0,78
• MARGINAL: 2,3 +/- 0,48

MECHANISM of TRAUMA

- MICROTRAUMA
- CRUSH
- TRACTION
- TRANSSECTION
- ISCHAEMIA
- TERMIC, ELECTRIC EFFECT
- CICATRISATION
I. NEUROPRAXIA

II. AXONOTMESIS /axons, Wallerian degeneration!/

III. NEUROTOMESIS /endoneural tubules/

IV. PERINEURAL TEAR

V. TOTAL TEAR

/I.-III. by compression, IV.-V. no total recovery without surgery/

The House-Brackmann VII. grading system

• I. Normal facial function in all areas

• II. Slight weakness on close inspection

• III. Obvious, not disfiguring difference, no functional deficit

• IV. Obvious weakness +/- disfiguring asymmetry

• V. Only barely perceptible motion

• VI. No motion

IATROGENY 5,6-7%

- Oral & maxillofacial surgery 40%
- Parotidectomy 25%
- Otosurgery 17%
- Cosmetic surgery 11%
- Other 7%


I. Fresh human corpses
Difficulties

I. Bleeding
II. Unusual anatomy
III. Other pathologies
IV. Other pathologies
RESULTS

- 31 corpses, 55 hemifaces

- 13 Male (11 included)  18 Female (all included)

- L:9 R:10 (altogether 19 HF)  L:18 R:18 (altogether 36 HF)

- 58-94y, m: 76,69y  60-90y, m: 73,73y

- Non dissected: haemorrhage, autolysis, time not allowed
<table>
<thead>
<tr>
<th>No.</th>
<th>% all</th>
<th>% all MMB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>hemifaces</td>
<td>branches</td>
</tr>
<tr>
<td>1</td>
<td>(55)</td>
<td>(70)</td>
</tr>
<tr>
<td>2</td>
<td>41</td>
<td>74.54</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>23.63</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1.81</td>
</tr>
</tbody>
</table>
55 hemifaces L:R=27:28  |  MHF:19 (24 br.)  |  FHF:36 (46 br.)
70 branches

<table>
<thead>
<tr>
<th>Branches</th>
<th>Left: 38 branches</th>
<th>Right: 32 branches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 branch: 17 patients</td>
<td>1 branch: 24 patients</td>
<td></td>
</tr>
<tr>
<td>5 MHF/12 FHF (5/12 br.)</td>
<td>9 MHF/15 FHF (9/15 br.)</td>
<td></td>
</tr>
<tr>
<td>2 branch: 9 patients /18br./</td>
<td>2 branch: 4 patients /8br./</td>
<td></td>
</tr>
<tr>
<td>4 MHF, 5 FHF (8/10 br.)</td>
<td>1 MHF, 3 FHF (2/6 br.)</td>
<td></td>
</tr>
<tr>
<td>3 branch: 1 patients /3br./</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>1 FHF (3 br.)</td>
<td>1 FHF</td>
<td></td>
</tr>
<tr>
<td>1 FHF</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HF: hemiface, br.: branch
<table>
<thead>
<tr>
<th>No.</th>
<th>%</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M/F (19/36)</td>
<td>L/R (38/32 no. branches)</td>
</tr>
<tr>
<td></td>
<td>(of included hemifaces)</td>
<td>(of all br. Of the given side)</td>
</tr>
<tr>
<td>1</td>
<td>73.68/75</td>
<td>44.73/75</td>
</tr>
<tr>
<td>2</td>
<td>26.31/22.22</td>
<td>47.36/25</td>
</tr>
<tr>
<td>3</td>
<td>0/2.77</td>
<td>7.89/0</td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>% /70</td>
</tr>
<tr>
<td>----------------</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>(of included branches)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Premandibular</td>
<td>45</td>
<td>64,28</td>
</tr>
<tr>
<td>Mandibular rim</td>
<td>8</td>
<td>11,42</td>
</tr>
<tr>
<td>Mandibula</td>
<td>17</td>
<td>24,28</td>
</tr>
</tbody>
</table>
# VERTICAL ORIGIN

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>% /70</th>
<th>%M/F</th>
<th>%L/R</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mandibula</strong></td>
<td>55</td>
<td>78,57</td>
<td>66,66/84,78</td>
<td>78,94/78,12</td>
</tr>
<tr>
<td><strong>Inferior rim</strong></td>
<td>1</td>
<td>1,42</td>
<td>0/2.17</td>
<td>0/3,12</td>
</tr>
<tr>
<td><strong>Inframandibular</strong></td>
<td>14</td>
<td>20</td>
<td>33,33/13,04</td>
<td>21,05/18,75</td>
</tr>
</tbody>
</table>

(of included branches)
<table>
<thead>
<tr>
<th>Branch</th>
<th>No.</th>
<th>%</th>
<th>%M/F</th>
<th>%L/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandibula</td>
<td>18</td>
<td>25.71</td>
<td>25/26.08</td>
<td>26.31/25</td>
</tr>
<tr>
<td>Inferior rim</td>
<td>6</td>
<td>8.57</td>
<td>8.33/8.69</td>
<td>7.89/9.37</td>
</tr>
<tr>
<td>Submandibular</td>
<td>46</td>
<td>65.71</td>
<td>66.66/65.21</td>
<td>65.78/65.62</td>
</tr>
</tbody>
</table>
8,57% of all specimens

83,33% : 16,66% = female : male

66,66% to buccal area

16,66% to cervical area

16,66% from buccal branch
ANASTOMOSIS

14.28% of all MMB (loop included)
8.57% of all MMB (without loop)
60% female
80% left

<table>
<thead>
<tr>
<th>No.</th>
<th>%/70</th>
<th>M/F</th>
<th>L/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-M</td>
<td>2</td>
<td>2.85</td>
<td>female</td>
</tr>
<tr>
<td>M-C</td>
<td>1</td>
<td>1.42</td>
<td>male</td>
</tr>
<tr>
<td>M-B</td>
<td>4</td>
<td>5.71</td>
<td>50-50%</td>
</tr>
<tr>
<td>2x M-B</td>
<td>1</td>
<td>1.42</td>
<td>female</td>
</tr>
<tr>
<td>M loop</td>
<td>4</td>
<td>5.71</td>
<td>1/3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2/2</td>
</tr>
</tbody>
</table>
• Mean number of the branches at the anterior margin of the parotid gland: 7,7 (6.72) +/- 1.05

• Mean number of the branches distally: 13.8 (12.23) +/- 1.81

• TEMPORAL: 2.8 (2.07) +/- 1.81
• ZYGOMATIC: 4.4 (4.05) +/- 1.34
• BUCCAL: 3.2 (4.53) +/- 0.78
• MARGINAL: 2.3 (1.56) +/- 0.48

Our data based on 90 hemifaces.

CONCLUSIONS I.

- VII. is the most often damaged cranial nerve
- Impact on QoL and the soul
- Head&Neck surgery may damage the MMB
- MMB is the most often dissected branch of VII.
- Chances of morbidity are elevated, „lenght”!
- Morphology is unstable, vigilance needed
CONCLUSIONS II.

• 1 branch is present in the majority of cases

• 1,27 MMB/hemiface in this study

• Double or triple branching is more frequent on the left

• Usually originates behind the mandibula

• Inframandibular origin is more frequent in males

• Submandibular course in about 2/3 of the cases

• Collaterals & anastomosis may occur, especially in females