Complication Rates

- Overall morbidity: 0.36 – 4.8 %
- Bleeding: 0.6 – 3.4 %
- Perforation: 0.08 – 0.83 %
- Mortality: 0.006 – 0.03 %
Preventing Postpolypectomy Bleeding

- **Prophylactic ST**
  Dobrovolski et al; Surg. Endosc. 2004
  Hsieh et al; Hepatogastroenterology 2001
  Ishi et al; Hepatogastroenterology 1997
  Shirai et al; Am. J. Gastroenterol. 1994

- **Prophylactic Clipping**
  Shioji et al; Gastrointest. Endoscopy 2003

- **Prophylactic Detachable Snare**
  Di Giorgio et al; Endoscopy 2004

*NO convincing data!*
Postpolypectomy Bleeding
Treatment Procedures

• Sclerotherapy
• Clipping
• Coagulation
• Snaring of the stalk
• (Looping of the stalk)

Better data!
MUPS

start 6/1999 till 2/2001

prospective!

number of patients 2311

3976 polypectomies

1880 outpatient proc.

2096 hospital proc.
Definition of Postpolypectomy - Bleeding

- **Minor Bleeding:**
  any bleeding with immediate intervention

- **Major Bleeding:**
  blood-tranfusion
  positive shock-index
  surgery
  recurrent bleeding
  delayed bleeding
### MUPS I

- **Minor bleeding**: 4.6% (182)
- **Major bleeding**: 0.9% (36)
- **Total**: 5.5% (218)
### MUPS II

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate bleeding</td>
<td>77.5%</td>
<td>169</td>
</tr>
<tr>
<td>Recurrent bleeding</td>
<td>4.6%</td>
<td>10</td>
</tr>
<tr>
<td>Delayed bleeding</td>
<td>17.9%</td>
<td>39</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>218</strong></td>
</tr>
</tbody>
</table>
MUPS III

- Definite endoscopic hemostasis rate

98.6 %
MUPS IV

- Requirement of blood transfusions: 0.32% (9)
  - Immediate bleeding: 1
  - Delayed bleeding: 5
  - Recurrent bleeding: 3

- Shock-index: 0.14% (4)
Bleeding and Size

% of all bleeding events by size category:

- All: 5.5, 4.6, 0.9, 1.8, 1.7, 1.8, 0.1, 14.4, 0.8, 11.4, 1.3, 39.2, 3.0, 1.3, 25.7, 1.3, 13.5

- Minor: 0.9, 0.1, 0.8, 3.0, 1.3, 13.5

- Major: 0.9, 0.1, 0.8, 3.0, 1.3, 13.5
Bleeding and Location

- All: 5.5%
- Left Colon: 5.6%
- Right Colon: 5.3%

Minor: 4.6% 4.9% 4.0%
Major: 0.9% 0.7% 1.3%
Bleeding and Histology

### Bar Chart

- **X-axis**: Types of lesions (all, adenom., carcin., hyperplast., misc.)
- **Y-axis**: Percentage (%)
- **Legend**:
  - All
  - Minor
  - Major

#### Data Points
- **All**: 5.5%
- **Adenom.**: 4.6%
- **Carcin.**: 24.0%
- **Hyperplast.**: 2.1%
- **Misc.**: 2.0%

#### Additional Information
- **Berlin - 05/04/2006**
- **W. Schmitt - München**
## Perforation Rate

<table>
<thead>
<tr>
<th>REFERENCE</th>
<th>DIAGNOSTIC COLONOSCOPY</th>
<th>THERAPEUTIC COLONOSCOPY</th>
<th>THERAPY</th>
<th>MORTALITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reiertsen 84</td>
<td>0/ 3538 (0%)</td>
<td>5/ 952 (0.53%)</td>
<td>4 → Op 1 → kons. Th</td>
<td>0</td>
</tr>
<tr>
<td>Waye 92</td>
<td>0/ 1320 (0%)</td>
<td>2/ 777 (0.26%)</td>
<td>2 → Op</td>
<td>0</td>
</tr>
<tr>
<td>Dafnis 01</td>
<td>5/ 4677 (0.11%)</td>
<td>3/ 1389 (0.22%)</td>
<td>8 → Op</td>
<td>0</td>
</tr>
<tr>
<td>Wexner 01</td>
<td>0/ 13580 (0%)</td>
<td>10/ 3328 (0.3%)</td>
<td>5 → Op 5 → kons. Th</td>
<td>0</td>
</tr>
<tr>
<td>Sieg 01</td>
<td>4/ 82416 (0.005%)</td>
<td>9/ 14249 (0.06%)</td>
<td>10 → Op 3 → kons. Th</td>
<td>1 (0.001%)</td>
</tr>
<tr>
<td>Korman 03</td>
<td>24/ 116000 (0.02%)</td>
<td>13/ ?</td>
<td>35 → Op 2 → kons. Th</td>
<td>0</td>
</tr>
</tbody>
</table>
**MUPS**

- Colonic perforation \(0.65\% (26)\)
- Primary conservative treatment 14
- Clipping 7
  (2 operated later on)
- Primary emergency surgery 12
- Total surgery rate \(53.9\% (14)\)
  6 resection - 8 suturing
<table>
<thead>
<tr>
<th>Size</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 cm</td>
<td>0</td>
</tr>
<tr>
<td>1-1.9 cm</td>
<td>0.85</td>
</tr>
<tr>
<td>2-2.9 cm</td>
<td>1.38</td>
</tr>
<tr>
<td>3-3.9 cm</td>
<td>3.22</td>
</tr>
<tr>
<td>&gt;= 4 cm</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Perforation and Size
Perforation and configuration
Perforation and localisation

- All: 0.7%
- Left hemicolon: 0.4%
- Right hemicolon: 1.2%
Conclusions from MUPS I

- Postpolypectomy bleeding depends on:

<table>
<thead>
<tr>
<th>Size of Polyp</th>
<th>Bleeding Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 cm</td>
<td>5 %</td>
</tr>
<tr>
<td>2-3 cm</td>
<td>15 %</td>
</tr>
<tr>
<td>3-4 cm</td>
<td>20 %</td>
</tr>
<tr>
<td>&gt; 4 cm</td>
<td>40 %</td>
</tr>
</tbody>
</table>

- Malign histology: 24 %
Conclusions from MUPS II

• **Perforation** rate depends on:

  size of polyp
  1-2 cm  1%
  2-3 cm  2%
  3-4 cm  3%
  > 4 cm  5%

  right-sided localisation  1.2%

• Non-surgical treatment successful in ~ 50%
Conclusions from MUPS III

- Major complication rates
  (n = 2311 patients with 3976 polypectomies)

  - Perforation: 0.65% (26)
  - Major bleeding: 0.9% (36)

  Total: 1.55%

- Mortality
  Data from literature up to: 0.03%
Summary

- Endoscopic polypectomy is safe
- In the strong MUPS – setting the complication rates are higher than previously reported
- Even though this is much lower than in surgical series