Canine total hip replacement (THR): Challenges and Results in the Medium and Large dogs

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A challenging surgery but very rewarding!
Hip replacements

- First human prototype 1891, Themistocles Gluck, Germany – Ivory.
- 1940, Dr Austin Moore, USA – Vitallium.
- 1960s/70s – progressing to routine procedure.
- Most frequent orthopaedic procedure in humans.
- Cat 2000s.
Indications

- Hip dysplasia.
- Osteoarthritis.
- Complex fractures.
- Legg-Calvé-Perthes disease.
- Hip luxation.
- Unsuccessful hip surgery.
Available techniques today in veterinary medicine

- Biomedtrix.
- Kyonn Zurich Cementless.
- Innoplant THR (Helica TPS-Stem/Screw cup).
BioMedtrix – hybrid system

BFX and CFX

Nano - micro – small – medium - large
The technique gives a biomechanically good function.

Evaluation of first 250 cases: 96% back to normal active "dog life".

Zingo, first case 1989. Thereafter >500 cases.

Richard 2 prosthesis.
Possible complications

Anything Is Possible
Possible complications

Luxation
Possible complications

Fissure

Fracture;
Fell out of bed!
Possible complications

Aseptic loosening

“Polyethylene disease”
Possible complications

Infection

Berner Sennen 5 years after THR
Possible complications

Femoral stem subsidence.
Possible complications

Significant intraoperative hemorrhage.
Possible complications

Intraoperative pulmonary trombembolism:
- fat
- bone
- cartilage
- air
Possible complications

Sciatic neuropraxia
<table>
<thead>
<tr>
<th>Condition</th>
<th>Veterinary reports</th>
<th>Human reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luxation.</td>
<td>3%-11,6% (1,2,3,4)</td>
<td>2-15% (5,6,7)</td>
</tr>
<tr>
<td>Fracture.</td>
<td>1,8%-2,9% (1,8)</td>
<td>0,1-18% (9)</td>
</tr>
<tr>
<td>Aseptic loosening.</td>
<td>2,1% (10,11)</td>
<td>32-62% (12,13)</td>
</tr>
<tr>
<td>Infection.</td>
<td>1%-8,3% (14,15)</td>
<td>1% (16)</td>
</tr>
<tr>
<td>Femoral stem subsidence.</td>
<td>4,6% (17)</td>
<td>1,5% (18)</td>
</tr>
<tr>
<td>Significant intraop. hemorrhage.</td>
<td>no numbers</td>
<td>19-70% (19,20)</td>
</tr>
<tr>
<td>Intraop. pulmonary embolism.</td>
<td>0-82% (21,22)</td>
<td>0.7%-30% (23)</td>
</tr>
<tr>
<td>Sciatic neuropraxia.</td>
<td>1,8-6,1% (24)</td>
<td>0,9-2,6% (25)</td>
</tr>
</tbody>
</table>
Evaluation of our last 27 cases with the new Biomedtrix hybride system.
## Our results

<table>
<thead>
<tr>
<th></th>
<th>Our number</th>
<th>Litterature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luxation</td>
<td>3,7%</td>
<td>3-11,6%</td>
</tr>
<tr>
<td>Fracture</td>
<td>3,7%</td>
<td>1,8-2,9%</td>
</tr>
<tr>
<td>Aseptic loosening</td>
<td>0%</td>
<td>2,1%</td>
</tr>
<tr>
<td>Infection</td>
<td>0%</td>
<td>1-8,3%</td>
</tr>
<tr>
<td>Femoral stem subsidence</td>
<td>3,7%</td>
<td>4,6%</td>
</tr>
<tr>
<td>(with clinical affection)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Femoral stem subsidence</td>
<td>3,7%</td>
<td>-</td>
</tr>
<tr>
<td>(without clinical affection)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significant intraop hemorrhage</td>
<td>0%</td>
<td>no numbers</td>
</tr>
<tr>
<td>Intraop pulmonary emboilsm</td>
<td>?</td>
<td>0-82%</td>
</tr>
<tr>
<td>Sciatic neuropraxia</td>
<td>0%</td>
<td>1,8-6,1%</td>
</tr>
</tbody>
</table>
Our results cont.

<table>
<thead>
<tr>
<th>Our numbers</th>
<th>Litterature</th>
</tr>
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<tr>
<td><strong>Revision surgery</strong></td>
<td>7,4%</td>
</tr>
<tr>
<td><strong>Overall complication rate</strong></td>
<td>14,8%</td>
</tr>
<tr>
<td><strong>Excellent end-results</strong></td>
<td>100%</td>
</tr>
</tbody>
</table>

Excelllent end-result = normal active life.
Challenges in hip replacement surgery

- Severe dysplasia.
- Surgery post malunions in the femoral neck or failure in FHNE (30).
- Surgery in the very young patient (31).
- Surgical experience (32).
Thank you for your attention.
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