THE EVIDENCE TO SUPPORT ARTHROSCOPIC DEBRIDEMENT OF THE OSTEOARTHRITIC KNEE

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History
The literature
To drill or not to drill - Abrasion
Patient selection
DEBRIDEMENT

How is the word pronounced?
DEBRIDEMENT

De as in fate
Bride as in seed
Ment as in wander (with or without the ‘t’)

What is Debridement?

- Articular trimming
- Meniscectomy / partial meniscectomy
- Removal of osteophytes
- Articular abrasion
- Local synovectomy
- Lavage
In a paper entitled Arthroscopy of the knee joint he said “in arthritic cases we had the pleasant surprise of seeing marked improvement in the joint following arthroscopy”
“Arthroscopy involves only minimal risk and in some cases has actually had a beneficial therapeutic effect, probably due to the thorough flushing and distension of the joint which it necessitated”
1941 - Magnuson

- Surg Gynecol Obstet 73:1, 1941
- Open procedure
- Introduced term “joint debridement”
- Use of arthroscope waned during 40’s due to 2nd WW
Isserlin 1950

- Reported series of 35 cases of open debridement
- Total synovectomy, osteophyte resection, cruciate ligament excision and patellectomy
- Improvement in symptoms in 66%
- Became treatment of choice until resurgence of arthroscopy in the 1970’s
“From Hippocrates to the present age, it is universally accepted that ulcerated cartilage is a troublesome thing that once destroyed it is not repaired”
1851 - Redfern

- Described wounds of the articular cartilage of dog joints and stated that the wound “healed perfectly by the ingrowth of fibrous tissue.”

- Deep lacerations however may be clearly visible years after injury and exhibit a “discoloured or roughened pit or linear defect”
Pridie Procedure - 1959

- Described drilling of eburnated bone
- 1/4” cortical drill holes through femoral condyle
- Found fibrous-like reparative cartilage filling and covering defect
BUT...

- Mitchell and Shepherd 1976

- Laboratory work suggested repair tissue lacked the proteoglycan concn found in normal cartilage

- Deteriorates and fibrillates by 1 year
Abrasion Arthroplasty

- Johnson 1986 Journal of Arthroscopy

- shaved eburnated grade IV chondral lesions
- 1-3mm is removed to expose interosseous vessels
- leads to fibrin clot & fibrous tissue repair
Protect immature tissue for 6-8 weeks non weight bearing

but Bx showed no type II collagen (usual for hyaline cartilage)

showed type I & III collagen (Fibrocartilage)

Although 51% had joint space widening at 2 years 1/3 of these had no improvement in symptoms or worse
THE EVIDENCE
DEBRIDEMENT

Norman F Sprague III Clin Orth 1980

1st reported series
short F/U 6 - 18 months
retrospective study 63 pts, 69 knees
subjective results scoring
74% good, 10% fair, 16% poor
Debridement contd....

- Timoney
- 1990 Orth Review Naval Hospital California

- Retrospective review
- 111 knees in 109 pts
- Mean age 58.1 & F/U 50.6 mths
- 50 good, 20 fair and 41 poor (HSS scoring system)
Ogilvie-Harris Arthroscopy 1991 Toronto
Retrospective review
441 knees 2-9 years (mean 4 years)
included 32 ‘abrasions’
subjective results
68% had at least 2 yrs or more of pain relief
53% were still good at F/U of 4.1 years
50 patients had a subsequent arthroscopic debridement - 38% had relief > 2 years
**Lavage vs Debridement**

- Gibson et al 1992 JBJS Edinburgh
- 20 pts unilateral OA moderate but mean flexion 100 deg
- Quadriceps and hamstring muscle power was assessed blindly using dynamometer
- At 6 & 12 weeks no change in scores for mobility and symptoms
- Increase quads torque in lavage group
Lavage vs Debridement

- Hubbard 1996 JBJS Glan Clwyd
- 76 knees,
- 40 debridement, 36 washout
- 1 yr
  - 32 of 40 pain free 5 pain free
- 5 yrs
  - 19 of 32 pain free 3 of 26 pain free
Lavage vs physio

Livesly 1991 JBJS Mansfield
Prospective trial
“All knees with treatable lesions were excluded from the trial”
Lavage improvement up to 1 yr
**Placebo effect**

- Placebo vs lavage vs debridement
- 4 out of 5 pts at 6 mths considered it worthwhile & would recommend it to family and friends
- Lavage not as good as placebo!
Debridement vs abrasion

- Rand 1991 Arthroscopy Mayo Clinic
- 131 knees grade III or IV debridement
- 80% improvement by 1 yr fell to 67% by 5 years
- 28 knees (17 had prior surgery) Grade IV
- Abrasion 11 improved 8 unchanged 9 worse
- 14 had TKR by 3 years
Debridement vs abrasion

- Bert & Maschka 1989 JBJS Minnesota
- 126 pts all offered abrasion, those that refused had debridement alone
- At 5 years

<table>
<thead>
<tr>
<th>Abrasion</th>
<th>Debridement</th>
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<tr>
<td>51% good</td>
<td>66% good</td>
</tr>
<tr>
<td>16% fair</td>
<td>13% fair</td>
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<tr>
<td>33% poor</td>
<td>21% poor</td>
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PATIENT SELECTION
AGE

No difference (Lotke 1991)
DURATION OF SYMPTOMS

> 1 yr worsens prognosis (Lotke 1991)

but these patients had worse OA at arthroscopy
PREVIOUS SURGERY

- Worsens prognosis (Ogillvie-Harris 1991)
LIMB MALALIGNMENT

- Worsens prognosis

(Ogilvie-Harris 1991 & Bamgaentner 1990)
SEVERITY OF DEGENERATIVE DISEASE

- Worse the XR changes - the poorer the results with surgery

(Bamgaertner 1990 & Jackson 1982)
MECHANICAL SYMPTOMS

- Improves prognosis
- 96% good to excellent results with non-degenerative tears
- 65% good to excellent results with degenerative tears

(Ogilvie-Harris 1991)
WE DON’T KNOW

- What makes the patients’ symptoms improve
- Repeat procedures - Do they work?
- Dearth of prospective controlled trials
National Institute for Clinical Effectiveness
THANK YOU