Current best practice in retinal detachment surgery

Steve Charles
MREH
Best Practice

- Referral pathway
- Management patterns
- Surgical success
- Avoiding complications
- Future developments
Referral pathway

- Must be timely and appropriate
- Direct referral from Optometrists
- Easy access to VR units
- Increased role of nurse specialists/ optoms
  - Wide angle photography
  - Vitreous assessment
- Current move within NHS to 7 day week
VR service at MREH

• 3 VR fellows
• 2 VR nurse practitioners
• 5 VR consultants

• Acute VR clinic run every morning: Mon-Fri

• PHONED REFERRALS plus FAX PLEASE!
• Please don’t “Fax and Forget”!
• (emails, web-based?????)
VR service at MREH

• Surgery: Acute VR lists Wed, Fri pm
  Plus added into Elective lists
  Early evenings, Sat

• TOTAL VR cases 2703
• Urgent VR cases 577/yr

• Approx 11 urgent VR cases per week
Standard technique

- **Cryo/ Buckle**
  - Vitreous attached
  - Round holes, dialysis, localised RD

- **23G PPV (+/- Phaco IOL)**
  - Vitreous detached
  - Intraocular media opacities
  - Vitreous traction
Although techniques change...
Some things ALWAYS stay the same.

Attention to detail
“Look after the conjunctiva and it will look after you!!”
Trends in surgical choice

Medicare Part B National Database (BESS, 2000-2010): Surgeon Cases, Total

- Scleral Buckle (67107)
- Vitrectomy (with or without buckle, 67108)
- Complex RD Repair (67113)
- Pneumatic (67110)
- Laser (67105)
- Cryo (67101)
Hospital admission rates in 1963–2004 for **vitreo-retinal surgery** for Oxford Record Linkage Study (ORLS) and national data measured as episodes and people per year, male and female, all ages, all sources of admission, any mention of the procedure.

RATES OF ALL VR SURGERY
Hospital admission rates in 1963–2004 for “external” buckle vitreo-retinal surgery for Oxford Record Linkage Study (ORLS) and national data measured as episodes and people per year, male and female, all ages, all sources of admission, any mention of the procedure.

RATES OF EXTERNAL BUCKLE

Halved 1994-2004
Hospital admission rates 1963–2004 for “internal” vitrectomy surgery for Oxford Record Linkage Study (ORLS) and national data measured as episodes and people per year, male and female, all ages, all sources of admission, any mention of the procedure.

RATES OF ALL PPV

Emergency hospital admission rates in 1963–2004 for vitreo-retinal surgery for Oxford Record Linkage Study (ORLS) and national data measured as episodes and people per year, male and female, all ages, any mention.

RATES OF EMERGENCY VR SURGERY
Reasons for move from Buckling

- Advances in small gauge surgery
- Improved wide angle viewing systems
- Reduced emphasis on scleral buckling in fellowship training
- Is this due to poorer results?
## Success Rates for RD Repair by Technique: Phakic eyes

<table>
<thead>
<tr>
<th></th>
<th>RETROSPECTIVE</th>
<th>PROSPECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SB</td>
<td>PPV</td>
</tr>
<tr>
<td>Miki 2001</td>
<td>100%</td>
<td>96%</td>
</tr>
<tr>
<td>Mansouri 2010</td>
<td>86%</td>
<td>78%</td>
</tr>
<tr>
<td>TRI recurrent RD 2008</td>
<td>86%</td>
<td>78%</td>
</tr>
<tr>
<td>EVRS 2013</td>
<td>88.6%</td>
<td></td>
</tr>
</tbody>
</table>

|                      | SB            | PPV         | Total Eyes |
| Heimann 2007 Phakic subgp | 63.6%         | 61.8%       |             |

Phakic eyes do well with Scleral buckling
### Success rates for RD repair in Pseudophakic eyes

<table>
<thead>
<tr>
<th>RETROSPECTIVE</th>
<th>SB</th>
<th>PPV</th>
<th>SB/PPV</th>
<th>Total eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mansouri 2010</td>
<td>80%</td>
<td>86.5%</td>
<td>80.3%</td>
<td>11</td>
</tr>
<tr>
<td>TRI recurrent RD 2008</td>
<td>80%</td>
<td>87%</td>
<td>80%</td>
<td>28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROSPECTIVE</th>
<th>SB</th>
<th>PPV</th>
<th>SB/PPV</th>
<th>Total eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stangos 2004</td>
<td>98%</td>
<td>92%</td>
<td></td>
<td>71</td>
</tr>
<tr>
<td>Sharma 2005</td>
<td>76%</td>
<td>84%</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Brazitikos 2005</td>
<td>83%</td>
<td>94%</td>
<td></td>
<td>150</td>
</tr>
<tr>
<td>Weichel 2006</td>
<td>93%</td>
<td>94%</td>
<td></td>
<td>152</td>
</tr>
<tr>
<td>Heimann 2007</td>
<td>53%</td>
<td>72%</td>
<td></td>
<td>26</td>
</tr>
</tbody>
</table>

PPV favourable in Pseudophakes
Current management patterns in UK

• BEAVRS RD database
• Over 1,500 retinal detachments entered
• In first 8 months of 2013, average 72 RD per month
• 41 users have entered data
  – 18 have 20+ cases

With thanks to David Yorston and BEAVRS
Presented at BEARS 2013
For the fellows…

- Macular status
  - Macula off 674 / 1,276 53%
- Lens status
  - Pseudophakic 362 / 1,276 28%
Types of RD

- Dialysis: 925
- GRT: 56
- Others: 28
- Round hole: 12
- U tear: 168

Legend:
- Green: Dialysis
- Blue: GRT
- Orange: Others
- Light blue: Round hole
- Red: U tear
Primary surgery

SB 18%

PPV 81%

SB 18%

PPV 81%
Similar at MREH?

- BEAVRS 18% SB
  81% PPV
- 3 VR fellows last 10 months
- 420 RDs 55 SB (13%)
  365 PPV (87%) all 23G
Buckling vs Vity

• Each VR surgeon has different training, equipment and experience

• Each does what works best “in their hands”

• Therefore overall success is the most important measure
BEAVRS success rates

- Follow-up data available, at least three months after surgery
  - Primary success: 693 (81.3%)
  - Failure: 98 (11.6%)
  - Unknown: 61 (7.2%)
    - Oil in situ – probably failure
    - Lost to F/U- probably success

- 217 surgery >3 months ago and no outcome data entered
Funnel plot

Small numbers. 12.4% failure  
Excludes unknown outcomes (40%)
Measuring success

• Need Good EPR
• No unknown outcomes
• Need one click for success rates

• Decision for OpenEyes at MREH but awaiting implementation……
Preventing complications

- Recognised complications in RD Surgery
  - Retinal re-detachment
  - Infection
  - ERM formation
  - Cataract
  - Subretinal perfluorocarbon fluid (PFC)
  - Retinal folds
Preventing complications

- Recognised complications in RD Surgery
  - Retinal re-detachment
  - Infection
  - ERM formation
  - Cataract
  - Subretinal perfluorocarbon fluid (PFC)
  - Retinal folds
Subretinal PFC

- MREH fellows last 10 months 1/420 RDs

Kim et al (2013)
Avoiding Subretinal PFC

Avoid by:

• Avoid using PFC in first place!!!!
• Keep as one bubble
• Do not inject over breaks under tension
• Saline rinse after air exchange
Retinal folds

- An avoidable complication of PPV
- Superior bullous RDs to fovea
- Incomplete removal of SRF at surgery
- Gas tamponade
Retinal folds

• If patient has SRF, large bubble and is upright......
Retinal folds

- 4 cases at MREH in 2013
- Superior bullous RDs
- Daycase and In-patient
- Complicated post-op instructions
- Poor handover of post-op instructions
Avoiding Retinal folds

Try not to leave SRF (roll eye, etc)
Avoid complete FAX if fluid at post pole
Strict face down after surgery
Good communication with recovery and ward staff
Staff education (including nursing staff)
REPORT AS AN AVOIDABLE INCIDENT
Future developments

- Smaller gauge with higher cut rates
- Scleral buckling remains an important skill
- Hybrid technique: internally illuminated SB
Summary

• Patient pathway and ease of access
  – Specialised nursing involvement pre- and post-op

• Commonest procedure is small gauge PPV
  – Pseudophakes, PVD+

• Buckling skills are under threat but **MUST** be preserved
  – Phakic, PVD-

• Attention to detail in VR surgery remains paramount, for success and prevention of complications

• Requirement for continuous “one click” audit
Thank you