

**New OVDs: Does 2% Sodium
Hyaluronate (Visiol™) have significant
advantages over 1% Sodium
Hyaluronate to justify it's use in
Routine Cataract
Phacoemulsification?**

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Introduction

- Sodium Hyaluronate 1% (Healon™) has been the “viscoelastic for routine cataract surgery”, in Warrington Hospital, since 1983. Recently a new product was introduced to the market: Sodium Hyaluronate 2% (Visiol™).
- We were asked if we would like to evaluate this new product to see if it had any clinical and cost saving advantages?

Composition of Healon™ & Visiol™

- Healon™ (0.4, 0.55, 0.85 ml)
- Sodium Hyaluronate 1% (Rooster Combs)
- Phosphate Buffer
- Abbott Medical Optics: Sweden

- Visiol™ (1.0 ml)
- Sodium Hyaluronate 2% (Fermentation)
- Phosphate Buffers
- Mannitol
- TRB Chemedica: Switzerland

Patients & Methods

- 100 patients listed for “routine cataract phacoemulsification” received Visiol™ in place of the current “routine viscoelastic” Healon™.
- 4 Consultants, 2 Staff Grades, 2 Trainees compared it with their previous experience of Healon by scoring:
 - Worse than Healon: 1
 - Same as Healon: 2
 - Better than Healon: 3

Scores:

- Worse than Healon: 1
- Same as Healon: 2
- Better than Healon: 3

Results:

1. “Stability of ac for capsulorrhesis”: Mean Score = **2.7**
2. “Stability of ac for insertion of IOL”: Mean Score = **2.7**
3. “Ease of aspiration” * : Mean Score = **2.0**

* *“taking into account that 2% sodium hyaluronate (Visiol) ‘fractures’ during removal and therefore takes longer to remove than Healon”.*

Results continued :

4. Volume: Visiol (1ml) compared with Healon (0.85ml) an advantage?: 98/99 (99%)
5. Residual Visiol noted in ac at the end of phaco ('possible endothelial protection'): 71/98 (72%).
6. First Day Post-op:
 - ac activity: 'cells +/-++'.
 - Mean IOP: 14.7
 - 1 patient 26, 1 patient:36 others:8 – 22 mmHg

Comparison of Different OVDs* Used in Warrington Hospital

Product	Composition/ Concentration	Source	MW (Da x 10 ⁶)	Volume (mls)	Price (£)
AMO: Healon	SH 1%	rooster comb	4	0.85	17.63
AMO: Healon GV	SH 1.4%	rooster comb	5	0.55	31.73
Alcon: Duovisc (Viscoat Provisc)	Viscoat = Chond Sul 4% +SH 3% Provisc SH 1%		CS: 0.0225 SH: >0.5	0.5	35.25
			>1.1	0.55	
TRB: Visiol	SH 2%	fermentation	1.8	1	14.50

* Ophthalmic Viscosurgical Devices

Cost Saving

- Although Visiol™ is manufactured in Switzerland its price is related to the Euro and has recently risen.
- Current savings compared to Healon™ are £3.63 (US\$5.53) per syringe.
- i.e. a potential saving of £7,260 (US\$11,000) over 2,000 cases.

Other Clinical Advantages ? Free Radical Scavenging

- In addition to the apparent increased retention and possible mechanical endothelial protection, that 2% sodium hyaluronate would appear to have over 1% sodium hyaluronate, we noted the advantage of the presence of mannitol in Visiol.
- Hydroxyl and superoxide radicals can be released during phacoemulsification as a result of cavitation, posing an oxidative threat to the corneal endothelium.

Mannitol & Free Radical Scavenging

- Although Sodium hyaluronate has been shown to act as a free radical scavenger, this may not be sufficient to adequately protect the corneal endothelial cells.
- To enhance this effect, Visiol contains mannitol, a powerful anti-oxidant which is able to 'mop up' free radicals, and offer additional protection to the corneal endothelial cells, to that provided by 2% sodium hyaluronate alone.

Conclusion 1

- Visiol™ was well received by the participating surgeons who felt it had clinical and cost advantages over Healon™.
- Clinically they noticed:
 1. improved control of capsulorrhexis.
 2. improved ac stability.
 3. with no excessive post-op IOP elevation.

Conclusion 2

- I, and some of the other Warrington Surgeons, have already adopted 2% Sodium Hyaluronate (Visiol™) as our “routine viscoelastic” (OVD) since commencing this trial.
- We feel that 2% Sodium Hyaluronate (Visiol™) has sufficient advantages, over 1% Sodium Hyaluronate (Healon™), to justify it's use in routine cataract phacoemulsification.

Conclusion 3

Comments from other participating surgeons:

“The more you use it, the more you like it” (Consultant)

“Behaves like ‘Viscoat™’ (Consultant)

“Does not escape out of the wound, as Healon does” (Staff Grade)

“Good experience overall, worked well enlarging pupil as patient was only mid-dilated” (SpR)

Thank You

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