TRABECULECTOMY

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FINANCIAL DISCLOSURES

• None

OPTIONS

• Phacoemulsification
• Phaco Plus
  • Trabecular bypass
  • Endophotocoagulation
  • Micro pulse diode laser
  • Trabeculotomy
• MIGS
  • Trabecular bypass
  • Trabeculotomy

• EPC
• Canalonplasty
• Trabeculectomy
• Express Shunt
  • Tube Shunt
  • +/- valve
  • Diode Laser
  • Multi Pulse
TRABECULECTOMY

- Performed for over 100 years
- Most commonly performed glaucoma procedure
- Greatest IOP lowering
- Requires no special equipment or instrumentation
- Within the realm of most ophthalmic surgeons
- Evolving procedure
  - Modified technique, Express shunt®

HISTORY

- 1856 Von Graefe³ - sector iridectomy
- 1961 Sugar², 1967 Coryllos³ - partial thickness procedure
- 1968 Cairns⁴ - describes procedure in AJO
- 1986 Savage and Simmons⁵ - argon laser suture lysis
- 1987 Kiazawa⁶ - 5-fluorouracil
- 1990 Chen⁷ - mitomycin-c

COMPLICATIONS

Intra Operative
  - inadequate conjunctiva
  - button hole, retraction
  - scarring
  - thin sclera
  - bleeding
COMPLICATIONS

Early Post Operative
- wound leak
- flat anterior chamber
- over filtration, aqueous misdirection, decreased aqueous production
- hypotony
- maculopathy
- choroidal effusions, hemorrhage

COMPLICATIONS

Early Post Operative
- under filtration
- bleeding
- infection
- corneal decompensation

COMPLICATIONS

Late Post Operative
- under filtration
- bleb leak
- bleb infection
- enlarged bleb
- discomfort, dellen
- endophthalmitis
- cataract
SUCCESS

- Proper patient selection
- Meticulous surgical technique
- Close patient post operative care

PATIENT SELECTION

- Understands the need for the procedure
- Goal of the procedure
- Frequent post operative visits
- Compliant with medical regimen
- Possible subsequent surgical intervention
- May experience a decrease in vision
- Long term follow-up
- Will patient be better managed with a different procedure
  - May require transfer of care

HISTORY

- Prior eye trauma
- Prior ocular surgery
- Uveitis
- Neovascular glaucoma
- Anticoagulation
- Target IOP
GENERAL CONSIDERATIONS

- Age
  - Young - greater scarring
- Race
  - Darker pigment - greater scarring

EXTERNAL DISEASE

- Eye Lid
  - Prior surgery
  - Blepharitis/meibomnitis
  - Scarring
  - Position
  - Lagophthalmos

CONJUNCTIVA

- Quality of the tissue
- Scarring
- Inflammation
- Mobility
SCLERA
- Scarring
- Scleromalacia
- Prior surgery

CORNEA
- Hx of severe dry eye
- Intolerance to topical therapy
  - Tolerate 5-FU injections

AXIAL LENGTH
- Short Eyes
  - Aqueous misdirection
- Long Eyes
  - Hypotensive maculopathy
LENS STATUS

- Phakic
  - Cataract
- Aphakic
  - Vitreous

SUCCESS RATE

- Lamping KA, Bellows AR, Hutchinsen BT, Afran SI
  - In Study of 252 eyes, 76% success at 4 years
- Yamashita H, et al
  - 50 pts 61% success at 5 years in primary glaucoma, similar results after failed trab
  - 797 eyes 70% success rate for an IOP of 18mmHg or less at 4 years

RISK FACTORS FOR FAILURE

AGIS 11

- Younger age
- Higher IOP pre-op
- Diabetes
- Post operative complications
- Marked inflammation
**TUBE VS TRABECULECTOMY (TVT) STUDY**

5 YEAR RESULT

- 212 Pts with uncontrolled glaucoma with previous cataract and/or Glaucoma surgery
- 107 350-mm Baerveldt implant
- 105 Trab with mitomycin-C (0.4mg/ml for 4 minutes)

**TUBE VS. TRAB (TVT) STUDY**

5 YEAR OUTCOME

<table>
<thead>
<tr>
<th></th>
<th>Tube(107)</th>
<th>Trab(105)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOP (mmHg)</td>
<td>14.4 ± 6.9</td>
<td>12.6 ± 5.9</td>
<td>.12</td>
</tr>
<tr>
<td>Meds</td>
<td>1.4 ± 1.3</td>
<td>1.2 ± 1.5</td>
<td>.23</td>
</tr>
<tr>
<td>Failure*</td>
<td>29.8%</td>
<td>46.9%</td>
<td>.002</td>
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<tr>
<td>Reop</td>
<td>9%</td>
<td>29%</td>
<td>.025</td>
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</tbody>
</table>

* Failure
  - IOP > 21 mm Hg or not reduced by 20%
  - IOP < 5 mm Hg
  - Reoperation for glaucoma
  - loss of light perception

**PERFECT PATIENT**

- Good long term relationship
- Understanding need for lower IOP
- No anticoagulation
- Healthy eye lid margins
- Pseudophakic from prior clear corneal phaco
- Healthy mobile conjunctiva
- Average axial length
- No other previous ocular surgery
- Good vision other eye
WORST CASE

- History of noncompliance with medications, visits
- Has significant field loss and doesn’t understand his disease
- High myope on Coumadin for mechanical artificial heart valve
- Significant lid or ocular surface disease

SUMMARY

- Trabeculectomy is a proven effective method of treatment for glaucoma
- Current advances have provided viable alternatives to trabeculectomy, but further evolution in the procedure has decreased the complexity of the surgery, possibly increased safety
- Cost issues for tube surgery
- Shifting paradigm

BIBLIOGRAPHY

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