ADENOIDECTOMY

**Medical Therapy**

- Systemic antibiotics have been used long-term (i.e. 6 wk) failed.
- topical nasal steroids tried but failed.

**Surgical Therapy**

*These can be using an endoscope i.e. endoscope assisted adenoidectomy or as a blind procedure*

**EXCISION THROUGH THE MOUTH**

**COLD SURGICAL TECHNIQUES**

- **Adenoid curette**
- **Adenoid punch** – An adenoid punch, shown below, is a curved instrument with a chamber that is placed over the adenoids. The chamber is closed, and a knife blade surgically removes the adenoids, which are then deposited in the chamber and removed with the instrument.
- **Magill forceps**: A Magill forceps, shown below, is a curved instrument used to remove residual adenoid tissue, usually deep in the choana and encroaching on or into the posterior nasal cavity, after attempted removal with curettes or adenoid punches.

**ELECTROCAUTERY WITH A SUCTION BOVIE**

- The second technique is using electrocautery with a suction Bovie, depicted in the image below, to remove the adenoid tissue or shrink the adenoids. The suction Bovie has a hollow center to suction blood or secretions and a rim of metal contact for coagulation, shown below. This instrument can be set for pure coagulation or for coagulation and cutting.
- Some consider the pure coagulation setting time consuming. The chalk adenoid tissue can obstruct the suction, requiring repeated cleaning, which slows the procedure.
- The coagulation/cutting combination method appears to be a quicker way to ablate the adenoid tissue. However, when using the cutting method, the transfer of energy to the surrounding tissues is greater, which can potentially cause more neck stiffness following the procedure.

**SURGICAL MICRODEBRIDER**

- Bleeding certainly occurs during the actual removal, but the total reported blood loss has been similar to using the traditional curette. The surgical microdebrider has been advocated for removing adenoid tissue that is difficult to reach using other techniques.

**LASER**

- The Nd:YAG laser has been used for the resection of adenoids. This technique has caused nasopharyngeal scarring and is best avoided.
COBLATION

- It is effective but may take increase time to remove the tissue, especially if significantly enlarged.

EXCISION THROUGH THE NOSE

- The only useful technique for removing the adenoids through the nasal cavity is with the suction microdebrider. With this procedure, bleeding may occur and it must be controlled with either packing or suction cautery.

COMPICATIONS

1. **Bleeding**
2. **Velopharyngeal insufficiency** – occurs as a result of incomplete closure of the palate to the posterior and lateral nasopharyngeal wall, where the adenoids had previously been located. VPI is observed transiently in more than half the patients undergoing an adenoidectomy and usually resolves in 2-4 weeks.
3. **Torticollis** – Because the adenoids are removed from the posterior wall of the nasopharynx over the spine and superior constrictor muscle, children can have a stiff neck or spasm of the neck, occasionally with torticollis.
4. **Nasopharyngeal stenosis**
5. **Atlantoaxial subluxation from infection (Grisel syndrome)** – Infection or inflammation in the nasopharynx following adenoidectomy is an extremely rare occurrence that can cause vertebral body decalcification and laxity of the anterior transverse ligament between the axis and atlas. Spontaneous subluxation is observed approximately 1 week after surgery and is associated with pain and torticollis. Treatment includes consultation with a neurosurgeon and stabilization of the cervical spine.
6. **Eustachian tube injury**
7. **Mandibular condyle fracture**
TONSILLECTOMY TECHNIQUES

COLD METHODS

- Dissection and snare
- Guillotine method
- Intracapsular tonsillectomy with debrider
- Harmonic scalpel
- Plasma-mediated ablation technique
- Cryosurgical technique

HOT METHODS

- Electrocautery
- Laser tonsillectomy
- Coablation tonsillectomy
- Radiofrequency

COLD STEEL TONSILLECTOMY

- The most common method of 'cold steel' tonsillectomy is the dissection technique

GUILLOTINE TECHNIQUE

- Whereby the tonsil is amputated using a specially designed guillotine device and haemostasis, secured as necessary.
- Of these two techniques, traditional dissection remains the most frequently used.

DIATHERMY TONSILLECTOMY

- In recent years, the technique has evolved of using diathermy not only as an aid to haemostasis when the tonsil has been delivered, but to dissect the tonsil from its bed.
- This has the obvious advantage of reducing intraoperative blood loss to a minimum.
- Major concerns about an increase in secondary haemorrhage rate and increased post op pain with diathermy.

COBLATION TONSILLECTOMY

- Technological innovations in any surgical procedure should focus on the following parameters:
  1. Bloodless surgical field
  2. Reduction in the surgical time
  3. Reduced post operative pain
  4. Improved healing rates
  5. Affordability
  6. Safety
- This is also known as “Controlled ablation” / “Cold ablation”.

This technology uses bipolar high frequency electrical energy to excite the electrolytes in a conductive medium.

This excitation creates a plasma field which is highly focussed.

The ions present in the plasma field are highly energized and this energy is sufficient to break organic molecular bonds found in the living tissue.

This energy dissolves soft tissue at relatively low temperatures, while preserving the integrity of surrounding tissue.

Sodium chloride solution is commonly used as a conducting medium in coablation surgical procedures.

**ADVANTAGES OF COABLATION:**

1. It operates at relatively cool temperatures (40 – 70 degrees centigrade)
2. Its cutting effect is very precise with very minimal effect on the surrounding tissue
3. The plasma field which is generated by this equipment is about 100 – 150 microns thick. This is the reason for its precision
4. Less bleeding
5. Preservation of capsule is possible if done under magnification. If capsule is preserved there is less post operative pain
6. Tonsillar reduction surgeries can be performed in young children without compromising the immunological function of the lymphoid tissue

**DISADVANTAGES**

- Highly operator dependent.
- Postoperative bleed rates were unacceptably high
- The wand used in coablation surgical procedures has channels for suction and irrigation. Normal saline should flow through irrigation channel and central suction should be connected to the suction channel.
- The technique involves the use of the operating microscope.

**ULTRASONIC DISSECTION OR HARMONIC SCALPEL**

- Ultrasonic dissection uses an oscillating blade, which acts as both a cutting and coagulating device. Enthusiasts for the 'harmonic scalpel' have claimed advantages over conventional techniques in terms of reduced pain and general morbidity.

**LASER TONSIILECTOMY**

- Advantages in terms of reduction of bleeding, postoperative pain and more rapid healing. A carbondioxide laser of a KTP laser can be used
- There is convincing evidence that the rate of secondary haemorrhage and late postoperative pain is significantly greater with laser

**CAPSULOTOMY TECHNIQUES**

- Techniques to ablate a part of the tonsil, usually leaving the capsule intact.
These 'tonsillotomy' techniques include thermal tissue ablation using radiofrequency volumetric reduction (RFVR) using a customized probe and surface laser surgery. They may be considered when tonsillectomy is undertaken in the very young where it may be desirable to leave some functioning lymphoid tissue.

**CRYOTONSILLECTOMY**

- The temperature reached during cryo is dependent on the medium used:
  - 82 degrees centigrade by carbondioxide
  - 196 degrees centigrade by liquid nitrogen
- Any of the above can be used in tonsil surgery. The major advantage of this procedure is minimal bleeding. The major disadvantage of this procedure is the operating time involved. This procedure is used only in patients with known bleeding diathesis

**Complications**

**IMMEDIATE**
- Primary hemorrhage
- Reactionary haemorrhage
- Injury to tonsillar pillars, uvula, soft palate, tongue or superior constrictor muscle
- Injury to teeth
- Aspiration of blood
- Facial oedema

**DELAYED**
- Secondary haemorrhage infection
- Lung complications
- Scarring in soft palate and pillars
- Tonsillar remnants
- Hypertrophy of lingual tonsil