

History

amount(1).remington-
hobbs described the
use of monopolar



**ASSIGN
BUSTER**

Historythe tonsils are organs of lymphoid tissues located at the entrance of the respiratory & digestive system(1). The first tonsillectomy known was operated by Cornelius Celsus, 2000 years ago(2).

Recent tonsillectomy started at the beginning of this century by the appearance of tonsillectomy dissection in Baltimore by Worthington(1907) & in London by Waugh(1909) & Guillotine tonsillectomy in New Castle by Willis and Pybus (1910). Vessel ligation in the tonsillar fossa was extremely difficult & first done by Cohen in 1909(3) In 1960, the laser of CO₂ introduced in medicine & the first use of it in tonsillectomy was in 1973. Otolaryngology was the first surgical branch in which the laser was used successfully in great amount(1).

Remington-Hobbs described the use of monopolar diathermy in tonsillectomy in 1968(5), Andrea defined the first microsurgical bipolar cautery technique in 1993 (6) universally, tonsillectomy is the most frequently performed otorhinolaryngological procedures(4). At the beginning tonsillectomy was performed by a general surgeon, but later became the operation of an otolaryngologist. The progress of tonsillectomy occurred by the appearance of mouth-gag & tongue depressor in addition to the positioning of patient with leaning and suspended head. This position was described first by Killian in 1920(1). In the USA, it is estimated that 1,400,000 tonsillectomy operations were done in 1959, around 500,000 in 1979 & 250,000 per year in the last decade, so at the initial period tonsillectomy was done frequently because many diseases were attributed to tonsils as a focus of infection. But later due to absence of convincing results, this procedure lost its influence & number of operations decreased gradually. Also advancement in the use of

<https://assignbuster.com/history-amont1remington-hobbs-described-the-use-of-monopolar/>

antibiotic contributed on this reduction of tonsil removal(1) Anatomy platine tonsils are one of the component of Waldeyer's ring which form a circular band of lymphoid tissues in the pharynx in addition to the adenoids & lingual tonsils.

The palatine tonsils have germinal center & distinct capsule in contrast to adenoid & lingual tonsil which separate it from the pharyngeal wall. The tonsillar fossa consist of three muscles, the anterior pillar is the palatoglossus muscle and the posterior pillar is the palatopharyngeus muscle & the bed of the fossa formed by the superior constrictor muscle. In the tonsils there is crypts exposed to the oropharynx, covered by stratified squamous epithelium(7).

Blood supply of the tonsils: the palatine tonsils blood supply is variable, they are supplied by several branches of the external carotid artery:

- ascending pharyngeal,
- ascending palatine,
- and branches of the lingual and facial arteries. The blood supply enters from the lower pole of the palatine tonsil. The internal carotid artery (ICA) lies approximately 2 to 2.5 cm deep and posterolateral to the palatine tonsil; however case reports exist of aberrant ICA courses which come within 1 cm of the inferior pole.

The ICA may have a tortuous and convoluted course of which the surgeon must be cognizant. Venous drainage is by way of a peritonsillar venous plexus, which surrounds the capsule and drains into the lingual and pharyngeal veins (8) the nerve supply of the tonsil arise from the glossopharyngeal nerve & branches from the lesser palatine nerves. The tympanic branch of the glossopharyngeal nerve cause the referred ear pain found in tonsillitis in the tonsil there is no afferent lymphatic vessels but the efferent vessels drain to the upper cervical lymph nodes through the

<https://assignbuster.com/history-amont1remington-hobbs-described-the-use-of-monopolar/>

jugulodigastric group. Tonsils & adenoid are immunologically active between the age of 4-10 years & involute after puberty(9) indication: Absolute 1. Obstructive sleep apnea 2. Suspected malignancy 3. Hemorrhagic tonsillitis 4.

Cardiopulmonary complications secondary to airway obstruction (e. g., cor pulmonale, 5. Tonsillitis causing febrile seizures Relative 1. Recurrent acute tonsillitis according to the following criteria: Seven episodes in 1 year? Five episodes/year for 2 consecutive years? Three episodes/year for 3 consecutive years? Two weeks of missed school or work in 1 year 2.

Chronic tonsillitis refractory to antimicrobial therapy? Peritonsillar abscess 3. Tonsillolithiasis with associated halitosis and pain, unresponsive

to conservative measures? Dysphagia due to tonsillar hypertrophy(10)

Contraindications • leukemia, hemophilia, agranulocytosis, uncontrolled systemic disease (diabetes, TB) • Relative Contraindications: cleft palate, acute infection(11)

Types of Tonsillectomy Procedures: The techniques of Tonsillectomy can be divided into 2 categories: extracapsular (total tonsillectomy, subcapsular) and intracapsular (subtotal, partial tonsillectomy), or called tonsillotomy is some literatures Extracapsular tonsillectomy involves dissecting the tonsil in the plane between the tonsillar capsule and the pharyngeal musculature, and the tonsil is removed as a single unit.

Partial tonsillectomy, involves removing of most of the tonsil, but preserving a rim of lymphoid tissue and tonsillar capsule Preservation of this rim of lymphoid tissue, as a "biologic dressing," may promote recovery, with lower hemorrhage rates and better recovery of diet and activity

compared with traditional monopolar tonsillectomy techniques. The

commonest extracapsular techniques are "cold" knife, monopolar
<https://assignbuster.com/history-amont1remington-hobbs-described-the-use-of-monopolar/>

electrocautery, bipolar cautery & harmonic scalpel, while the commonest intracapsular technique are bipolar radiofrequency ablation (also can remove the entire tonsil), microdebrider & carbon dioxide laser(12) According to the latest survey of members of the American Academy of Otolaryngology and the American Society of Pediatric Otolaryngology, electrocautery is the preferred method for tonsillectomy by roughly 55% of Otolaryngologists.

Coblation tonsillectomy is estimated to be the preferred method by 20%-25%, cold steel techniques by 10% and other techniques including microdebrider partial tonsillectomy by the remaining 10%. Although popular, the electrocautery technique has its drawbacks as it has been shown to be a more painful surgery than cold techniques, due to the additional thermal injury inflicted upon the exposed musculature. Recently, there has been increasing interest in performing a partial tonsillectomy, or tonsillotomy, to maintain the tonsillar capsule and reduce postoperative pain and bleeding. As with every surgical technique, intracapsular tonsillectomy also has its drawbacks. Large case series have shown that tonsillar regrowth occurs in about 0.

5%-6% of patients with a smaller percentage requiring completion tonsillectomy. The operation takes several minutes longer than electrocautery tonsillectomy, which adds to the surgical costs. Intraoperative blood loss is greater but appears to not be clinically significant. The role of intracapsular techniques for managing children with recurrent tonsillitis is still unproven though initial studies are encouraging for this indication.(13) The conventional techniques are commonly used in most hospitals worldwide

because they do not require any expensive machines(25) Cold steel
<https://assignbuster.com/history-amont1remington-hobbs-described-the-use-of-monopolar/>

tonsillectomy The most common method of 'cold steel' tonsillectomy is the dissection technique (Figure 96).

2). In this, the tonsil is retracted medially, the mucosa overlying the tonsil capsule incised and the plane of loose areolar tissue between the tonsil and the pharyngeal musculature dissected with steel dissectors, gauze or cottonwool until the tonsil is fully mobilized (Figure 96. 3).

Blood vessels traversing the plane of dissection are dealt with either by ligature or diathermy as required. (14) After removal of tonsils, the bleeding from the lower pole is controlled either by mechanical methods (suture or ligation) (15) An alternative method of 'cold steel' tonsillectomy is the guillotine technique, whereby the tonsil is amputated using a specially designed guillotine device and haemostasis, secured as necessary by one of the above methods. Of these two techniques, traditional dissection remains the most frequently used.

(14) Advantages and disadvantages of the techniques there is argument regarding the benefit of different tonsillectomy techniques. Some studies assume that the intracapsular technique result in less post operative pain in addition low risk of tonsil regrowth. For the extra capsular technique, cold knife technique associated with less postoperative pain compared with an electrocautery which is faster & has less loss of intraoperative blood. It is unknown which technique has the lowest post operative bleeding rate the available data suggest that there is no variation in the bleeding rates between different techniques (12) Post-tonsillectomy bleeding : tonsillectomy is one of the most common surgical procedure

performed in the world, various techniques have evolved over the years but the percentage of PTB is still almost the same & considered as the most significant complication (16) The risk of bleeding is present even when the operation is done by the best surgeons in spite of using the most meticulous haemostatic techniques (17) Haemorrhage was defined as a bleed that prolonged the patient's hospital stay, required blood transfusion, a return to the operating theatre, or in the case of 'secondary' haemorrhage readmission to hospital (18) Post-tonsillectomy bleeding is divided into two types: primary bleeding occurring within 24 hr and secondary bleeding occurring at any point more than 24 h after tonsillectomy .

The overall bleeding rate is around 4.5% , with reported rates of 0.2-2.2% for primary and 0.1-3.5% for secondary bleeding. (19) .

The mortality has been reported to be between 1 per 1100 and 1 per 16000 (20) primary bleeding is more serious than the secondary one because it usually occurs when the patient's responsiveness & protective airway reflexes are attenuated by post-anesthetic or narcotic effect, furthermore , the primary bleeding is usually more brisk & profuse than secondary one (21) primary bleeding is usually related to operative technique, (22) inadequate hemostasis during the surgery (19) early loss of spasm of the blood vessels in the tonsillar fossa, & insufficient blood clotting (22) Secondary bleeding is associated with detachment of the crust from the site of the removed tonsils. (19) advice on post-tonsillectomy diet (22) risk factors generally associated with PTB include age, sex, previous history of peritonsillar abscess, smoking, HT, use of NSAID , & season when the operation is performed (22) Risk factors for

postoperative bleeding Age The age of patients is usually considered a major
<https://assignbuster.com/history-amont1remington-hobbs-described-the-use-of-monopolar/>

risk factor for the occurrence of bleeding, the older patients being at higher risk (19) Sex There is a discrepancy concerning sex as a risk factor for postoperative bleeding. Some authors found a positive correlation for male patients being at higher risk and others did not

(19) Operative techniques Operative techniques have been investigated in more detail, finding a statistically significantly higher or lower postoperative bleeding rates for different operative techniques? For example, bipolar diathermy technique shows higher bleeding rates in comparison with cold steel dissection technique (19) Preoperative hemoglobin level and anemia There were no significant statistical difference regarding the preoperative hemoglobin level in the occurrence of post-tonsillectomy bleeding.

Postoperative infection of tonsillar fossa A study from 2007 showed that postoperative infection of the tonsillar fossa is not a risk factor for secondary bleeding, but another study found a positive relationship between preoperative bacterial colonization of the tonsillar fossa and postoperative bleeding, recommending use of antibiotics.

However, prescribed antibiotics did not reduce the risk for post-tonsillectomy bleeding in general (19) Mechanism of hemostasis There are two main components of hemostasis. Primary hemostasis refers to platelet aggregation and platelet plug formation. Platelets are activated when they are exposed to subendothelial matrix, and as a result they adhere to the site of injury and to each other, plugging the injury. Secondary hemostasis refers to the deposition of insoluble fibrin, which is generated by the proteolytic coagulation cascade. This insoluble fibrin forms a mesh that is incorporated into and around the platelet plug. This mesh serves to strengthen and

stabilize the blood clot. These two processes happen simultaneously (23).
hemostasis by suture ligation is thought to be initiated after tonsillectomy
by 1ryhemostasis, on the other hand hemostasis by snare technique is
thought to be initiated after tonsillectomy by crushing(2ndry hemostasis)
(24)