

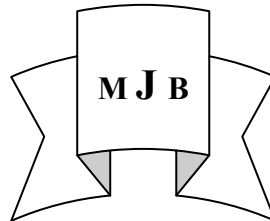
CO₂ Laser Tonsillectomy :A Comparison with the Standard Technique

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Abstract

Background: Tonsillectomy is the most frequent operation done in our specialty; many methods have been applied like the dissection method, the guillotine, the coblation method, tonsillectomy by the use of laser and other methods .

Objectives: To evaluate laser excision of tonsillectomy versus the standard excision, the parameters monitored were post-operative pain and healing and intra-operative blood loss.

Patients and method: This prospective study was carried out on 50 patients. One tonsil was removed with CO₂ laser and the other was excised with conventional dissection and tie technique. The patients did not know which tonsil was removed with laser. Pain, healing and the intraoperative blood loss were assessed and a comparison between both sides was done.

Results: On the evening of surgery 80% of patients select the site that underwent dissection method as the most painful, at mid week: 80% select the laser side as the most painful and about 70% of patients at day 10 also select the laser side as the most painful. Intraoperative blood loss was significantly less with CO₂ laser tonsillectomy but healing was not accelerated.

الخلاصة

تم استئصال اللوزتين في مرضى البحث بطريقة أن تكون إحداهما بواسطة الليزر والثانية بالطريقة العادية في نفس المريض وهذا يجعل المقارنة بين الطريقة الكلاسيكية وطريقة الليزر تكون في ذات المريض من حيث كمية النزف بعد العملية وسرعة الالتئام الجرح والمضاعفات الأخرى المتوقعة وكذلك مقدار الألم بعد العملية، وقد لوحظ في هذا البحث أنه في مساء العملية أشار ٨٠% من المرضى أن مكان العملية الكلاسيكية كان أكثر ألماً، بينما في نهاية الأسبوع لاحظ ٨٠% من المرضى إن جهة عملية الليزر كانت أكثر ألماً وكذلك في اليوم العاشر لاحظ ٧٠% من المرضى إن عملية الليزر كانت أكثر ألماً. ولوحظ أن نسبة النزف كانت أثناء العملية أقل باستخدام ليزر CO₂ لكن الالتئام كان أبطأ.

Introduction

Palatine tonsils are sub epithelial lymphoid tissue situated in the oropharynx in a triangular fossa between the palatopharyngeal fold and palatoglossal fold. It receives its blood supply from three arteries at the lower pole which are the tonsillar branch of facial art , ascending palatine branch of facial art and from dorsal lingual branch of lingual art while the upper pole receive two arteries the ascending pharyngeal branch of external carotid art and the descending palatine artery branch of maxillary art .[1]

Tonsillectomy is done for many indications but the most common are:

- Recurrent acute tonsillitis.
- Obstructive sleep apnea.
- Recurrent quinsy.

There are many techniques for tonsillectomy, the conventional dissection and tie technique, the use of snare, the coblation and excision by laser. [2]

Laser was first introduced into otolaryngology by Jako 1972 and since then CO₂ laser has been used increasingly for a variety of ear nose and throat practice.

Its benefit is that it provides precise excision of tissue, haemostasis of vessels up to 0.5 mm in diameter ,preservation of adjoining tissue and minimal postoperative edema. [3] CO₂ laser is absorbed by water and act by vaporizing tissue at its focal point thus enabling a fine haemostatic incision to be performed without precluding primary repair of resultant wound. [4]

Patients and Methods

This prospective study was carried out on 50 patients in Al-Yarmouk Hospital between 1996 - 1997, all had a history of recurrent tonsillitis for several years, four patients had recurrent peritonsillar abscess, the surgical procedure was tonsillectomy. Excision of one tonsil was done by laser and the other one with standard dissection and tie technique and this allow each patient to serve as his own control with respect to pain and healing which can vary from one person to another, also the comparison of blood loss from side to side in the same individual was thought to have more relevance since tonsil size, vascularity, and degree of inflammation would be closely correlated in the same patient. Because

Table 1

Painful side	Percentage
right side	80%
left side(laser side)	10%
Bilateral	10%

Third day after surgery, 48%of patients it was found that the side removed by dissection as the most painful, while 50% of patients found the side removed by laser as being most painful

Table 2

Painful side	Percentage
right side	50%
left side(laser side)	48%
both sides	20%

the nature of the study requires subjective interpretation of pain, young children below 10 years were excluded. The left tonsil was chosen for excision by laser, the laser beam hed between 6-12 w in continuous cutting mode, the other tonsil was removed by dissection method.

Blood loss was recorded from both sides, the presence of pain and on which side was greater also recorded at night of surgery, at the third and tenth post-operative day.

Healing was assessed at the tenth day by degree of epithelization in the tonsillar fossa, the amount of exudates and degree of surrounding oedema.

Results

Fifty patients were included. Age range between 10 to 30 years. The right tonsil was removed by dissection and the left by laser.

On the evening of surgery 80% of patients identified the side removed by dissection as the most painful. 10% felt both sides equally painful. So statically significant no of patient found the laser side less painful. This is illustrated in table no.1

so there is no statistically significant difference in pain awareness between laser and dissection side. this is illustrated in table no.2

Ten days after surgery: 70% of patients identified the laser side as being most

painful this is illustrated in table no.3.

Table 3

Painful side	Percentage
right side	20%
left side(laser side)	70%
both sides	10%

Average blood loss for laser tonsillectomy was 55 cc versus 95cc

on the contra-lateral side. This is illustrated in table no.4

Table 4

Left tonsil	55cc
Right tonsil	95cc

Healing: at 10th day post-operation: Healing was comparable between the two sides and showed no statistical difference. This illustrated in table no.5

Table 5

Clinical healing assessment	No. of tonsillectomy
Both sides show equal healing	28
Conventional side showed better healing	22

Discussion

Our study demonstrated a clear and statistically significant reduction of pain in the immediate post –operative period with the use of CO₂ laser , most studies suggest that it is the laser sealing action on the fine peripheral nerve endings that result in a lowering of subjective pain post-operatively .[5-8]

There was no statistical improvement in healing with laser excision versus standard excision. There was statistically significant less amount of bleeding in laser tonsil than dissection method the photocoagulative effect on the small blood vessels may contribute to this less blood loss.[5]

Conclusion

Laser tonsillectomy is superior to dissection method of tonsillectomy in regard to less pain in the immediate post operative period and less amount of blood loss intra operatively so it may be helpful in patients with

bleeding tendency. There is no difference between the two methods regarding wound healing.

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