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RESEARCH ARTICLE

A COMPARISON OF COBLATION VERSUS CONVENTIONAL TONSILLECTOMY IN A TERTIARY CARE CENTER.

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Manuscript Info

Manuscript History

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Abstract

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Introduction:-

This is a prospective randomised study to compare the **coblation and conventional** tonsillectomy techniques in view of their advantages and complications in a tertiary care center. It was conducted and follow up was done for 6 months.

It compares, Blood loss Post op pain at 6 hrs and POD-1, Return to normal diet, Post op complications.

Materials And Methods:-

1. Design of study: Prospective randomised cohort study Number of patients studied : n=50
2. Collaborating departments: nil
3. Selection of subjects : 5 to 20 years
4. Study Centre : Department of ENT

This study compares the result of coblation with conventional tonsillectomy in aspects of

1. Blood loss
2. Pain post operatively at 6 hrs and POD-1
3. Return to normal diet
4. Complications
5. 50 patients were divided in to 2 groups of equal numbers
6. In one group tonsillectomies were done by coblation method and in other group done by conventional method
7. The patients were randomly divided to either groups of equal numbers
8. All surgeries were done under general anaesthesia
9. All patients were kept for 3 days in the hospital
10. Intra operative blood loss was measured by weighing the gauze and cotton ball before and after the procedure and by measuring the amount in suction bottle deducted from saline
11. All patients were given pre operative antibiotics and post operative analgesics
12. Post operative pain score was charted at 6hrs post operatively and POD-1 using visual analog scale
13. Patients and parents were asked to make note of any complications
14. Patients were reviewed in clinic on 7th POD

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Inclusion criteria

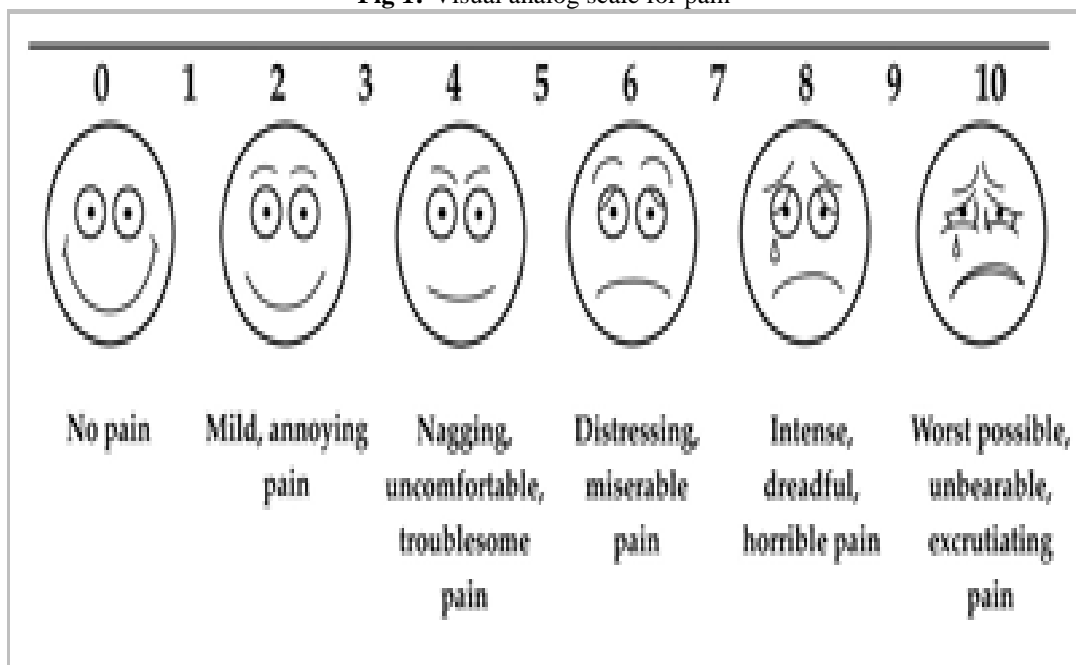
1. Indications for tonsillectomy in our study are chronic recurrent tonsillitis
2. Recurrent attacks of tonsillitis
3. 7 episodes in 1year
4. 5 episodes per year for 2years
5. 3 episodes per year for 3years
6. Age 5-20yrs. (with out any history of tonsillitis within 4 weeks prior to surgery) .

Exclusion criteria

1. Age <5 yrs,>20yrs
2. Acute infection
3. Anaemia – hb < 10gm/dl
4. Bleeding diathesis
5. Coagulation disorders
6. Uncontrolled systemic diseases

Symptoms for evaluation

1. Throat discomfort
2. Odynophagia
3. Unpleasant taste
4. Foetor
5. Voice change
6. Failure to thrive
7. Fatigue
8. Loss of appetite

Fig 1:-Visual analog scale for pain**Signs for Evaluation**

1. Hyperaemic anterior pillars
2. Enlarged JD nodes
3. Irwin moore sign- pus pouring out of tonsillarcrypts with application of pressure on anterior tonsillar pillars

4. Enlarged or atrophic tonsils

Pre operative anesthetic assessment was done

All basic blood investigations including bleeding parameters were done.

Informed consent:

1. Informed consent was obtained from the patients and parents after explaining to them the procedure and objective of the study.
2. The consent form described the purpose of the study and the procedure to be followed.

Conventional tonsillectomy procedure

This is the most commonly used method to perform tonsillectomy today. In sister rose's position patient is placed, naso tracheal or oro tracheal intubation done, boyledavis mouth gag with appropriate tongue blade placed, throat pack kept, using walsellum tonsil holding forceps left tonsil is medially retracted, using forceps incision is made at the junction of anterior pillar and superior pole the mucosal overlying the tonsillar capsule is incised and plane of loose areolar tissue between the pharyngeal musculature and tonsil is dissected with tonsillar dissectors and gauze, and the tonsil is mobilized. The tonsil is dissected along with its capsule and lifted out of its bed till the inferior pole. It is removed using a tonsillar snare which is also known as the Eve's tonsillar snare.

Fig 2:-Instruments used in conventional tonsillectomy



Coblation tonsillectomy procedure

In sister rose's position patient is placed, naso tracheal or oro tracheal intubation done, boyledavis mouth gag with appropriate tongue blade placed, throat pack kept, under microscope using walsellum tonsil holding forceps left tonsil is medially retracted, using coblation tonsillar wand incision is made at the junction of anterior pillar and superior pole the mucosal overlying the tonsillar capsule is incised and plane of loose areolar tissue between the pharyngeal musculature and tonsil is dissected, and the tonsil is mobilized. The tonsil is dissected along with its capsule and lifted out of its bed till inferior pole. It is removed using tonsillar wand, bleeding points are coagulated using the wand. same procedure is done on the other side.



Fig 3:-Intra operative picture of coblation tonsillectomy.

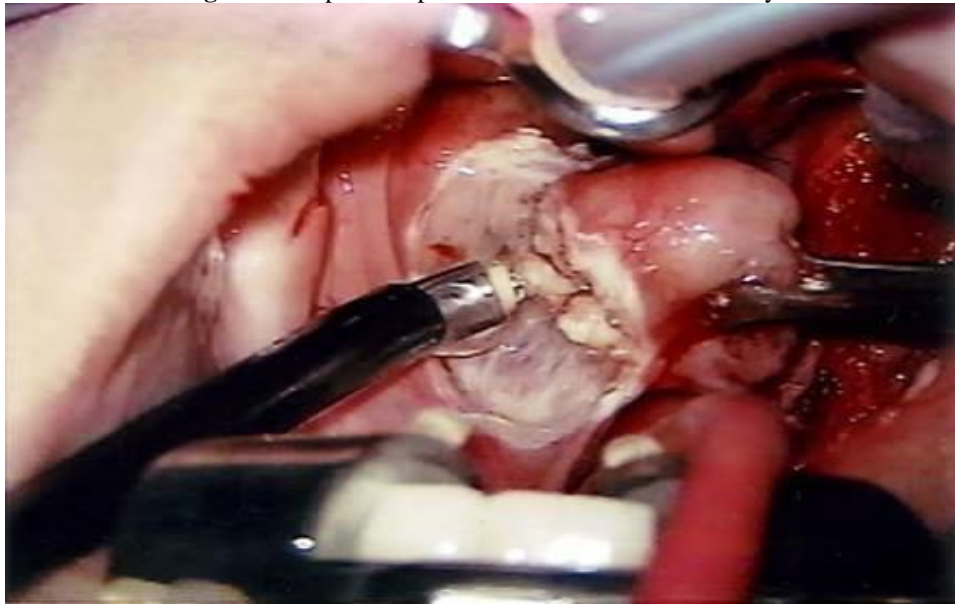


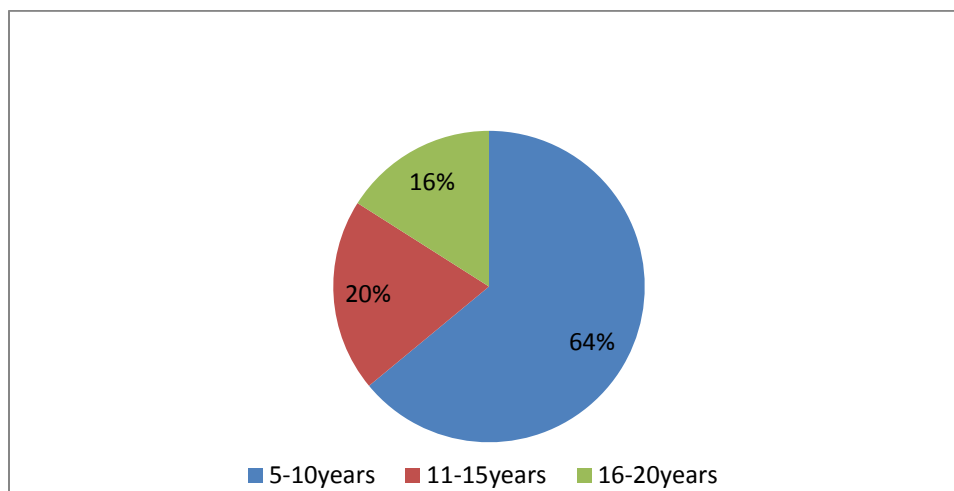
Fig 4:-Coblation wand with Machine

**Table 1:-Results Of The Study Conducted**

Age	Coblation group	%
5-10years	16	64
11-15years	5	20
16-20years	4	16
Total	25	100

Distribution of patients according to age in coblation

1. Most of the patients were between 5-10years
2. Mean – 6.5years

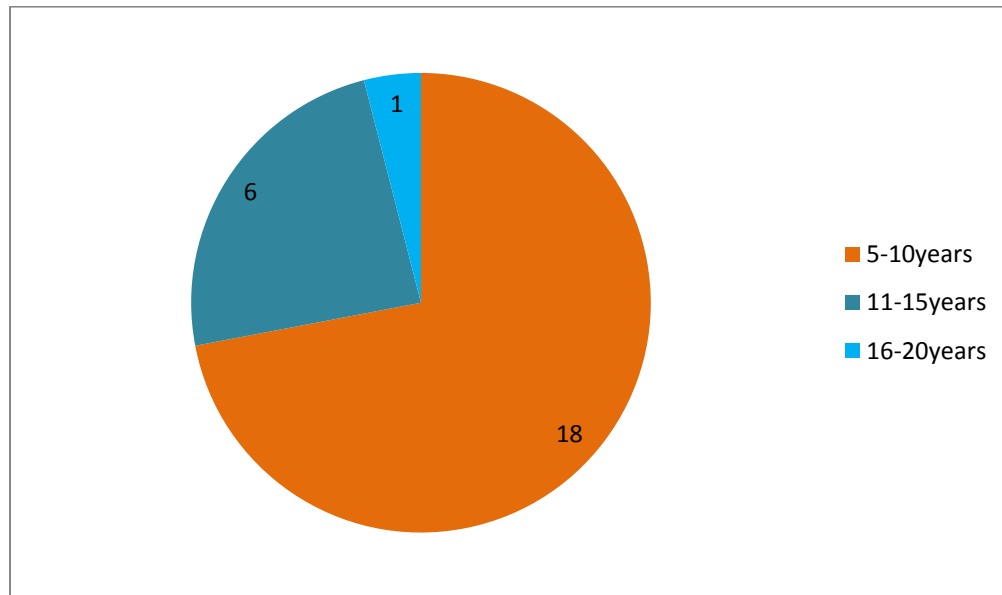
**Pie Diagram 1:-Showing Distribution of Patients According to Age in Coblationtonsillectomy****Table 2:-Distribution of patients according to age in Conventional Group**

Age	Conventional group	%
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5-10years	18	72
11-15years	6	24
16-20years	1	4
Total	25	100

Most of the patients were between 5-10years

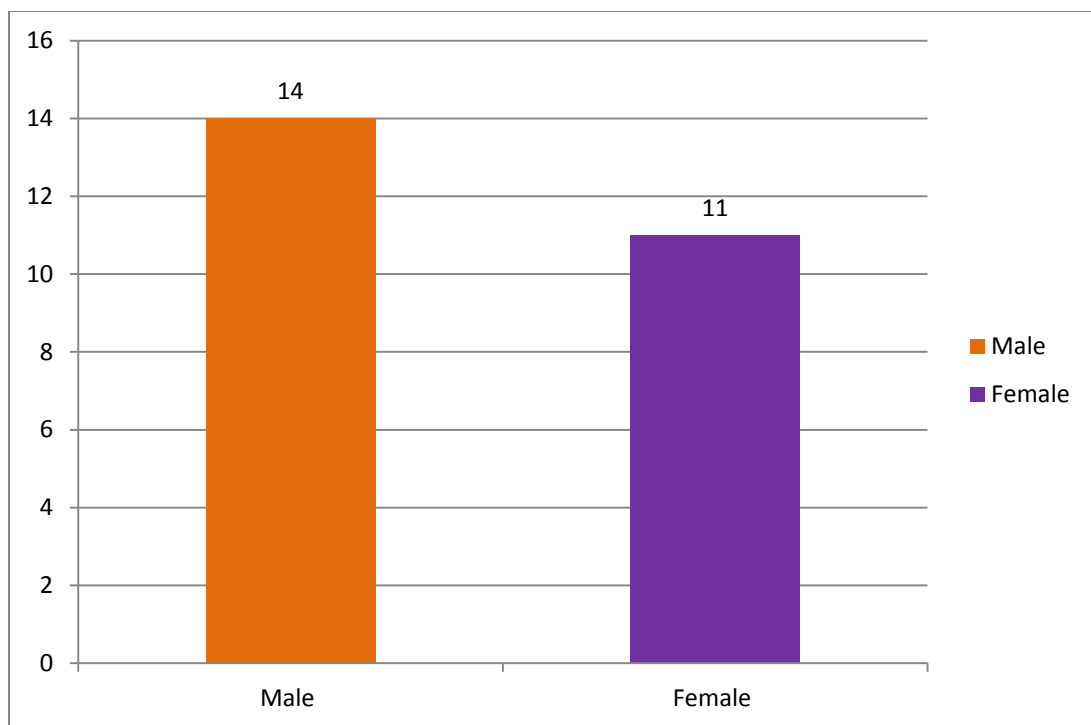
Mean – 6years



Pie Diagram 2:-Showing Distribution of Patients According to Age in Conventional tonsillectomy

Table 3:-Distribution of patients according to sex in coblation Group.

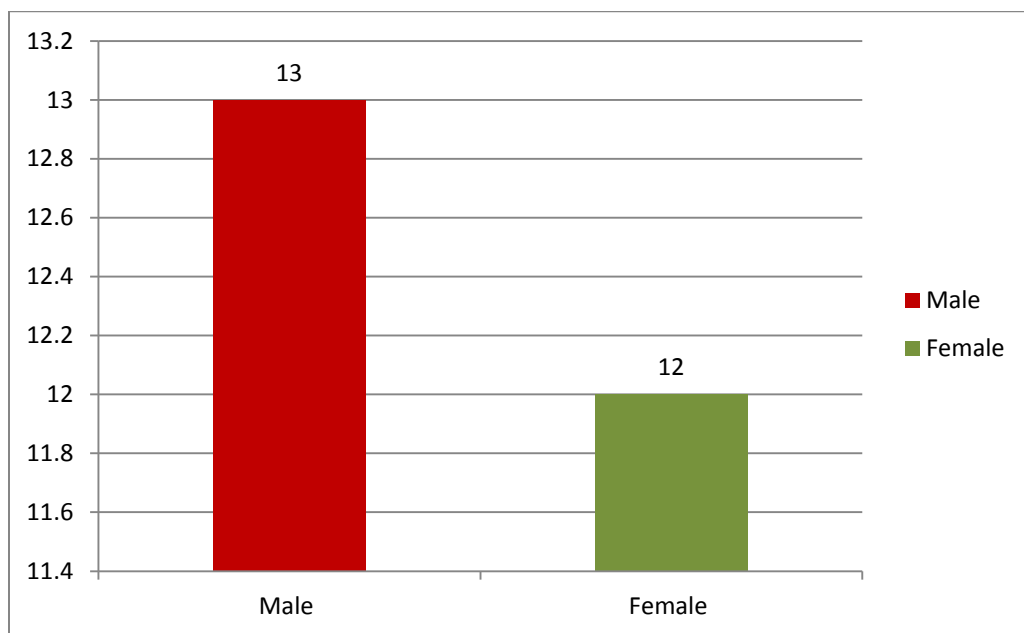
Sex	Coblation group	%
Male	14	56
Female	11	44
Total	25	100



Bar Diagram 1:-Showing Distribution of Patients According to sex in coblation tonsillectomy

Table 4:-Distribution of patients according to sex in Conventional Group

Sex	Conventional group	%
Male	13	52
Female	12	48
Total	25	100

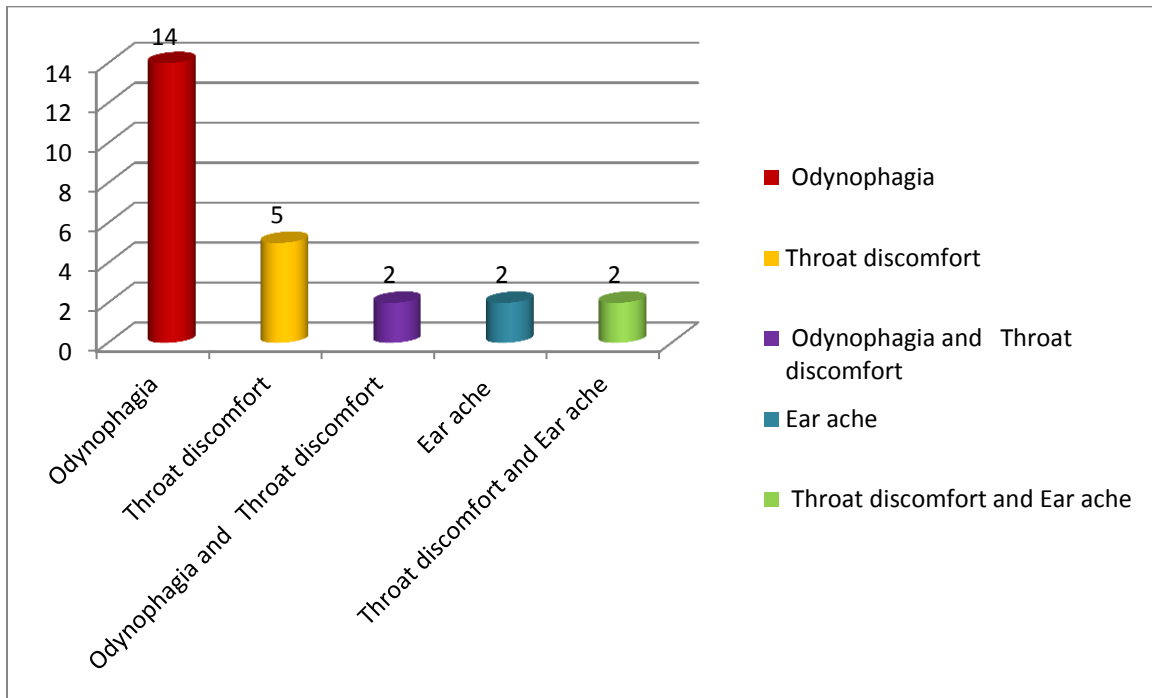


Bar Diagram 2:-Showing Distribution of Patients According to sex in Conventional tonsillectomy

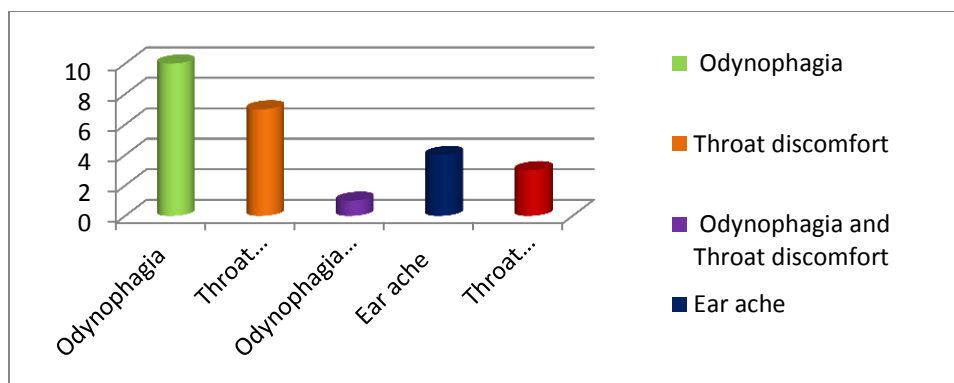
Table 5:-Distribution of symptoms in coblation method

symptoms	coblation group	%
Odynophagia	14	56
Throat discomfort	5	20
Odynophagia and Throat discomfort	2	8
Ear ache	2	8
Throat discomfort and Ear ache	2	8

Most of the patients presented with odynophagia followed by throat discomfort .

**Bar Diagram 3:-**Showing Distribution of Patients According to symptoms in coblation tonsillectomy**Table 6:-**Distribution of symptoms in Conventional method

symptoms	Conventional group	%
Odynophagia	10	40
Throat discomfort	7	28
Odynophagia and Throat discomfort	1	4
Ear ache	4	16
Throat discomfort and Ear ache	3	12



Bar Diagram 4:-Showing Distribution of Patients According to symptoms in Conventional tonsillectomy

Table 7:-Duration of symptoms in coblation method

Duration	Coblation group	%
0-6months	7	28
6months -1 year	10	40
1-3years	8	32

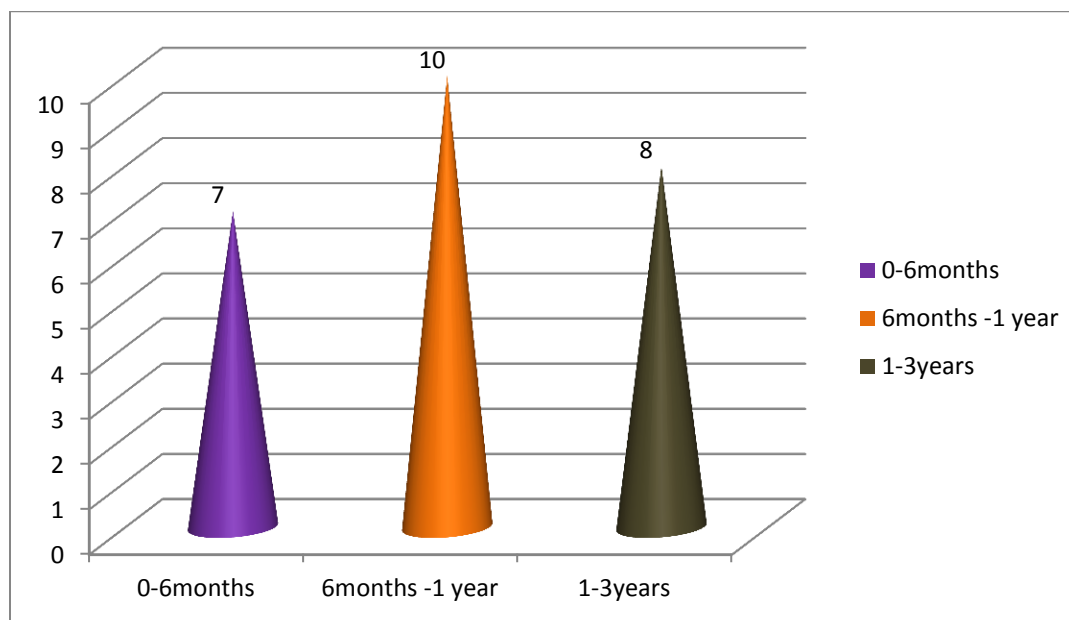


Diagram1:- Showing Duration of symptoms in coblation method

Table 8:-Duration of symptoms in Conventional method

Duration	Conventional group	%
0-6months	5	20
6months -1 year	14	56
1-3years	6	24

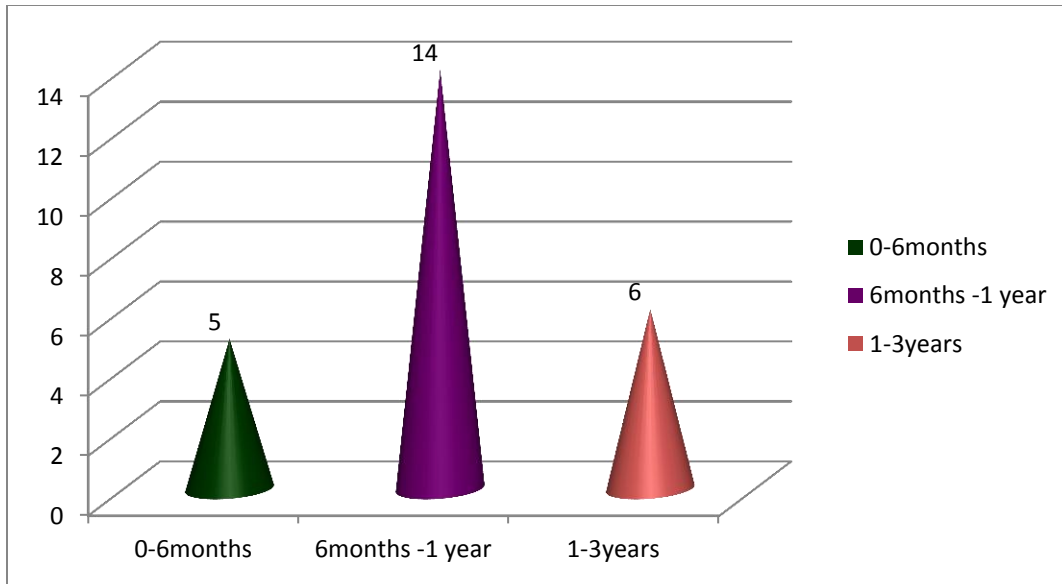
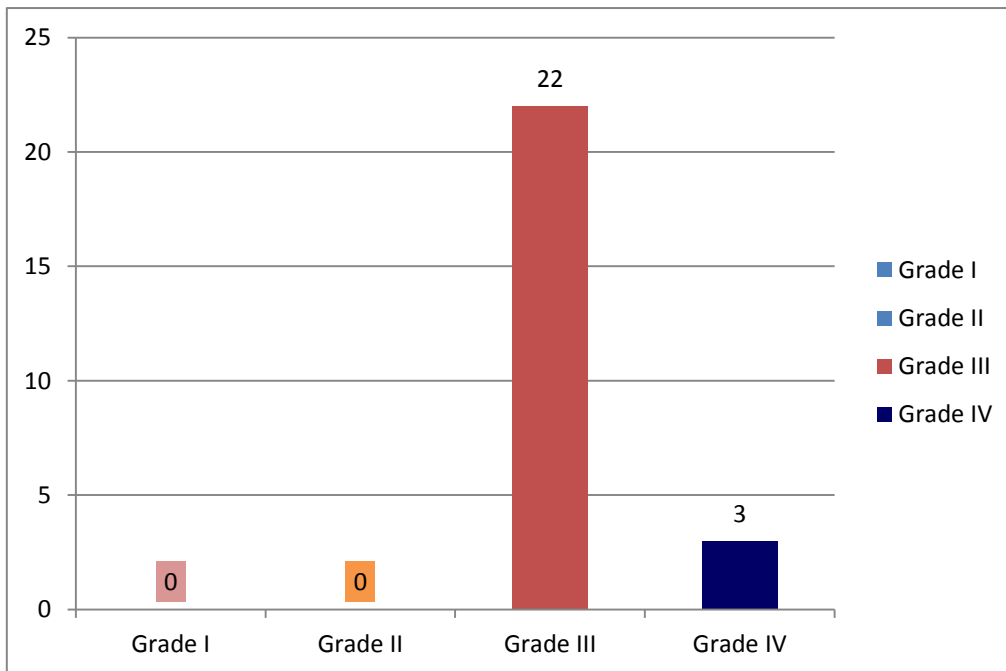


Diagram 2:-Showingsymptoms in Conventional method

Table 9:-Grading of tonsil in coblation group

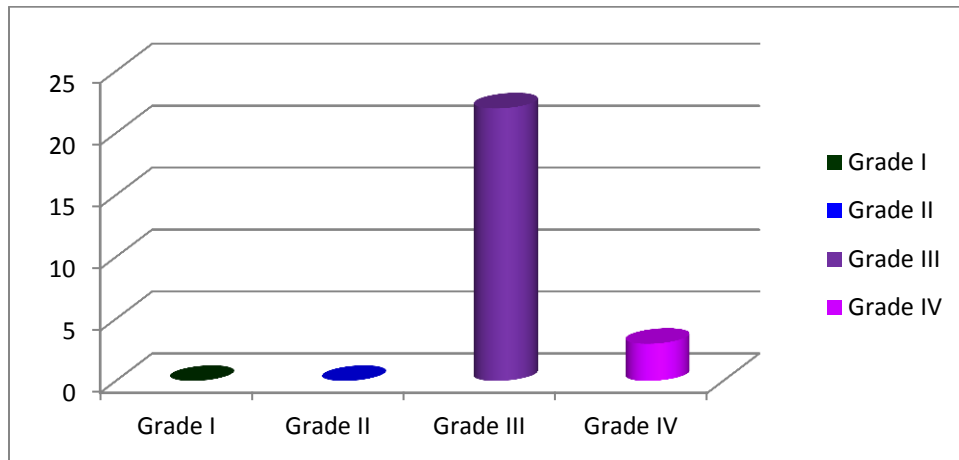
Grade	coblation group	%
Grade I	0	0
Grade II	0	0
Grade III	22	88
Grade IV	3	12



Bar diagram 5:-showing grading of tonsil in coblation group

Table 10:-Grading of tonsil in Conventional group

Grade	Conventional group	%
Grade I	0	0
Grade II	0	0
Grade III	22	88
Grade IV	3	12

**Bar diagram 6:-**showing grading of tonsil in Conventional group**Table 11:-**Intra operative blood loss in [ml] in coblation group

Blood loss in ml	Coblation group
Minimum loss	20ml
Maximum loss	70ml

Mean blood loss 36ml

Table 12:-Intra Operative Blood loss in [ml] in Conventional group

Blood loss in ml	Conventional group
Minimum loss	55ml
Maximum loss	150ml

Mean blood loss 90.6ml

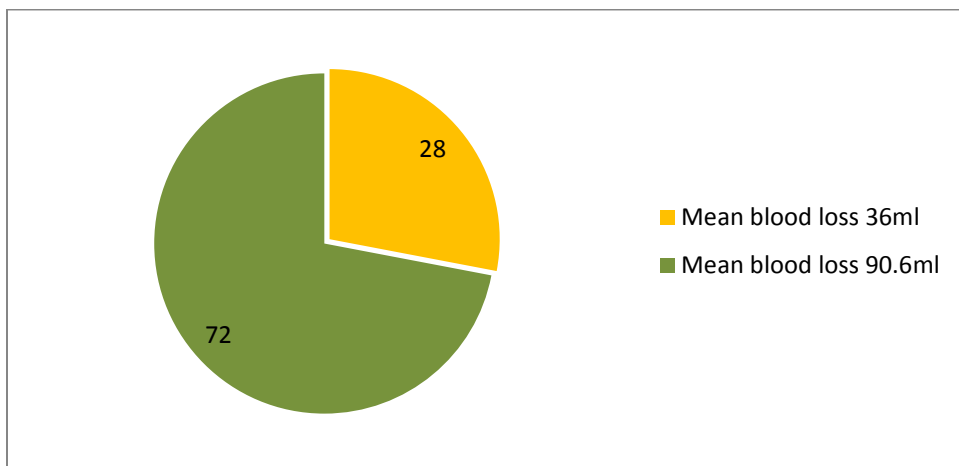


Table 13:-Comparison of Post-operative pain score between coblation and conventional group after 6hrs

6hrs	coblation	Conventional
Minimum score	2	3
Maximum score	3	6

Table 14:-Comparison of Post-operative pain score between coblation and conventional group after POD-1

6hrs	coblation	Conventional
Minimum score	1	1
Maximum score	2	3

1. In coblation group at 6hrs Post operatively minimum score was 2 and maximum score was 3
2. On POD 1 minimum score was 1 and maximum score was 2
3. In Conventional group at 6hrs Post operatively minimum score was 3 and maximum score was 6
4. On POD 1 minimum score was 1 and maximum score was 3

Table 15:-Comparison of 'Return to normal diet' in coblation and conventional group

Day	coblation	Conventional
Minimum day	POD1	POD 2
Maximum day	POD 3	POD 3

In coblation group return to normal diet was on POD1 which was earlier to POD 2 in conventional group.

Table 16:-Rate of complications

Group	complications
coblation	nil
Conventional	Nil

In Both group patients developed nil complications

1. 50 patients were randomly divided in to two groups consisting of 25 each in coblation and conventional tonsillectomy group
2. Among the age group most of the patients belonged to 5-10 yrs in both groups. Minimum age was 5 yrs and maximum age was 19 yrs in both groups.
3. Among sex distribution males were more when compared to females in both groups
4. Among symptoms most patients presented with odynophagia followed by throat discomfort in both groups and with combination of both associated with ear ache in few cases
5. Duration of symptoms ranged from 6months to 1 year in majority of patients in both groups
6. Grading of tonsil was grade 3 in most cases and grade 4 in few cases in both groups
7. Intra operative blood loss was compared. In coblation group minimal loss was 20 ml and maximum was 70ml, in conventional group minimal loss was 55ml and maximum was 150ml. Blood loss in coblation group was found to be minimal.
8. Post operative pain was assessed using visual analog scale. 6 hrs post op in coblation group minimal score was 2 and maximum was 3, on POD-1, minimum was 1 and maximum was 2.
9. In conventional group 6 hrs post op minimal score was 3 and maximum was 6, on POD-1, minimum was 1 and maximum was 3.
10. Return to normal diet was compared in both groups. In coblation group minimum was day-1 and maximum was day-3. In conventional group minimum was day-2 and maximum was day-3. So return to normal diet was found earlier in coblation group.
11. Rate of complications were compared and were nil in both groups.

Discussion:-

1. Coblation tonsillectomy is recently introduced dissection method with few reports in the literature

2. Coblation is a new method in soft tissue surgery.
3. It is used in the treatment of snoring, nasal congestion, and sleep apnoea has received much more interest
4. In ENT tonsillectomy is most commonly performed procedure and conventional method is considered as standard and most common method
5. Tonsillectomy is also done by various other methods
6. In studies most of the newer techniques are compared with conventional method
7. The value of newer methods are compared based on intra operative and post operative morbidity and complications
8. The most common post operative complication following tonsillectomy is haemorrhage and pain
9. Post operative pain is the most common subjective symptom
10. In this study the time taken to control the bleeding influences on blood loss and blood loss was found to be decreased in coblation group
11. Post operative pain should be reduced because it impairs swallowing with risk of dehydration, infection and secondary haemorrhage.
12. Laser tonsillectomy and hot electrosurgery causes more post operative pain compared to conventional method
13. In this study patients belonging to coblation group developed mild pain with minimal pain score of 1 and maximum of 3 seen at post operatively 6 hrs and on POD-1
14. In conventional group minimal pain score was 3 and maximum was 6 seen post operatively 6 hrs and on POD-1
15. In this study early return to normal diet was found in coblation group on day-1 when compared to conventional group on day-2
16. There were no major complications noted in both groups.

Conclusion:-

1. This method was designed mainly to compare newer method coblation tonsillectomy with conventional tonsillectomy in aspects of amount of intra operative blood loss
2. Post operative pain
3. Early return to normal diet
4. Post operative complications
5. More significant results have been observed in all aspects with coblation method
6. This benefit suggests further evaluation and use of this method in future.

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