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A Comparative Study between Partial Inferior Turbinectomy and Submucosal Diathermy in Management of Inferior Turbinate Hypertrophy

Corresponding Author: XXXXX

Abstract: *Inferior turbinate hypertrophy is one of the major causes of chronic nasal obstruction. Cases that do not respond to medical treatment need surgical management . Out of various surgical procedure to reduce the size of inferior turbinate , partial inferior turbinectomy and submucosal diathermy are common. We attempted to study their merits and demerits over one another.*

Materials and method: *Prospective and randomized controlled study had been carried out at Silchar Medical College and Hospital for a period of one year . the study comprised of fifty patients in age group 20 to 50 years which were randomly divided into two groups. Patients were operated under local anaesthesia and a note of post-op nasal pain , nasal bleeding , degree of intra nasal crusting , degree of tissue healing , dryness of nasal mucosa , atrophic rhinitis and nasal obstruction was taken. Results were analysed using standard statistical tests.*

Conclusion: *Submucosal diathermy is superior to Partial inferior turbinectomy in terms of relief of symptoms and fewer complications.*

Keywords: *partial inferior turbinectomy , submucosal diathermy,inferior turbinated hypertrophy*

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I. Introduction

In todays scenario one of the most common morbidity affecting adult population is nasal blockage which hampers their day to day life and work efficacy , also causing prolong respiratory tract infection and obstructive sleep apnoea . Out of all the causes of nasal blockage inferior turbinate hypertrophy remains the foremost , which may be either due to allergy or vasomotor rhinitis. Most patients get symptomatic relief with medical treatment as nasal decongestant , anti histaminics , topical and systemic corticosteroids, desensitization of allergy or by avoiding allergy. Medical treatment has its limitations and side effects on long term use. In patients who are refractory to medical treatment, various surgical options such as partial inferior turbinectomy , submucosal diathermy , cryosurgery (cryoturbinectomy) ,submucosal injection of corticosteroids , sclerosants , laser turbinectomy , submucosal resection of entire inferior turbinate and total turbinectomy have been tried. These procedures are traumatic and are complicated by post-operative bleeding, infection, dryness, crusting, adhesions and controversy .

Resection of obstructive inferior turbinate was first reported in 1895 and 5 years later Holmes reported his experience of 500 cases(7) . Sub-mucosal diathermy (S.M.D) of inferior turbinate was popularized in 1989, although it was reported in 1907 .Studies comparing these two have been done internationally(1,2) and locally (4,5,6) but have not been conducted in Silchar Medical College and Hospital.

II. Material And Methods

Setting : Study have been carried out in ENT and Head and Neck Surgery Department of Silchar Medical College and Hospital . Patients of both the gender have been selected from Out patient department of ENT. Duration of study was one year from June 2016 to July 2017. The sample size was 50 .The study design was prospective study

Inclusion criteria: 1. Patients of chronic nasal obstruction due to hypertrophy inferior turbinate of both sex attending Dept. Of ENT SMCH OPD who did not respond to medical treatment.

2. Patients between 20 to 60 years were selected

Exclusion criteria: 1. Bleeding disorders , IHD , immunocompromised patients

2. Patients younger than 20 years and older than 60 years

All the quantitative variables like age were presented as the mean and the standard deviation. Frequency and percentage was measured for all qualitative variables like gender and nasal obstruction before and after procedure for both sides. P- value <0.05 was taken to be significant.

Results : A total of 50 patients were included in the study with 25 patients in each study group.

Table 1 :- distribution of patient as per age group

Age group (in years)	Partial inferior turbinectomy		submucosal diathermy		Total	
	Number of patients	percentage	Number of patients	percentage	Number of patients	percentage
21-30	8	32%	6	24%	14	28%
31-40	10	40%	14	56%	24	48%
41-50	6	24%	4	16%	10	20%
51-60	1	4%	1	4%	2	4%

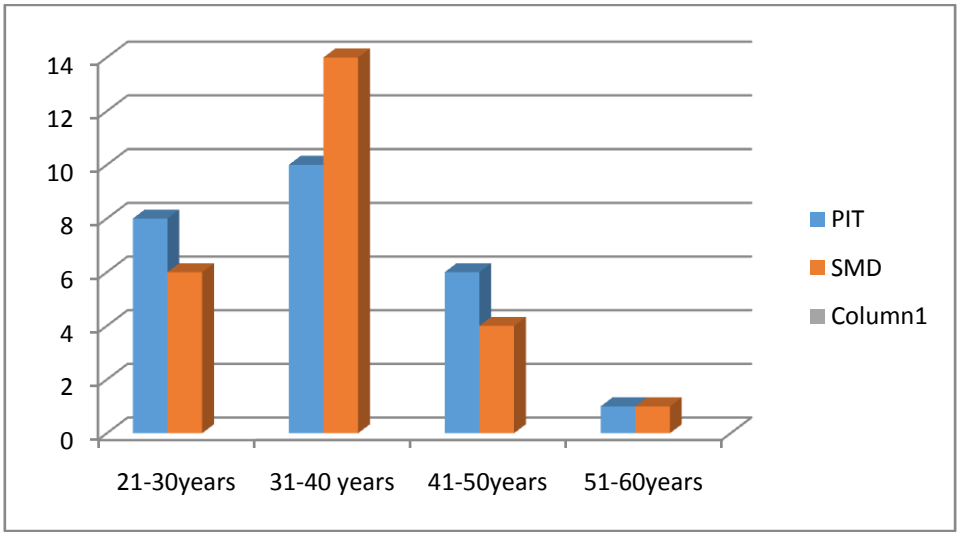

Fig : distribution of patients as per age group in two groups

Table 2 : distribution of sex

Sex	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	percentage	Number of patients	percentage	Number of patients	Percentage
Male	15	60%	14	56%	29	58%
Female	10	40%	11	44%	21	42%

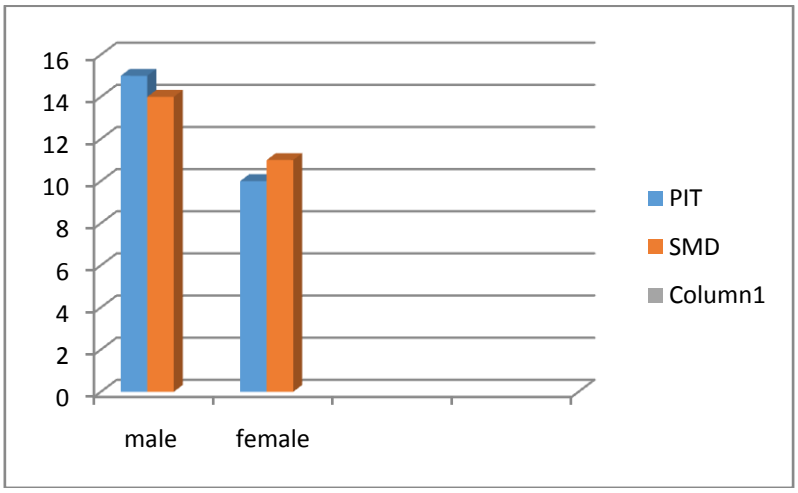

Fig distribution of patient as per sex

Table 3 :-Day 1 post operative assessment

A. Nose bleeding

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	Percentage	Number of patients	Percentage	Number of patients	percentage

Nose bleeding None Mild Moderate	 19 6	 76% 24%	 24 1	 96% 4%	 24 20 6	 48% 40% 12%

P value <0.05 and is significant

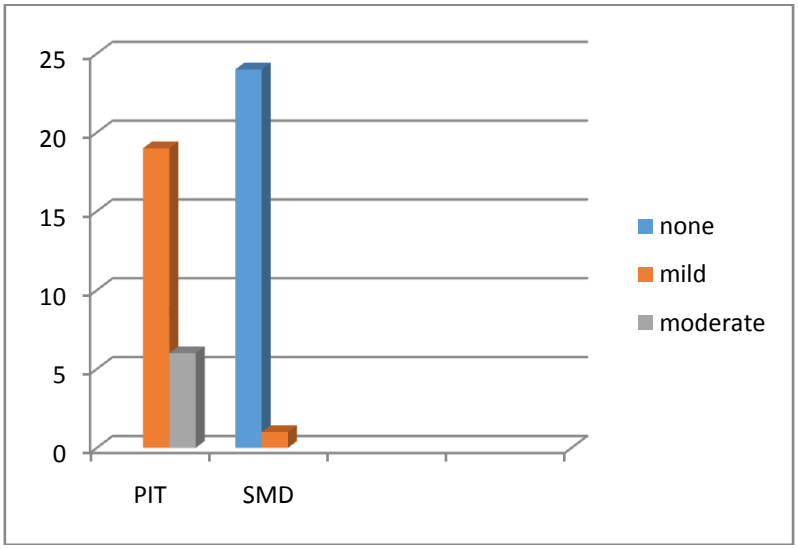

Fig : distribution of nose bleeding in two groups

Every patient of PIT had postoperative bleeding,out of which 16 patients had mild bleeding and 9 patients had moderate bleeding ,for which patient had to be kept under observation for 1 day . But in submucosal diathermy only 1 patient had mild bleeding and so all patient had been discharged on the same day.

B. Edema

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	Percentage	Number of patients	Percentage	Number of patients	percentage
Edema None Mild Moderate	 9 16	 36% 64%	 7 18	 28% 72%	 9 23 18	 18% 46% 36%

P value <0.05 and is significant

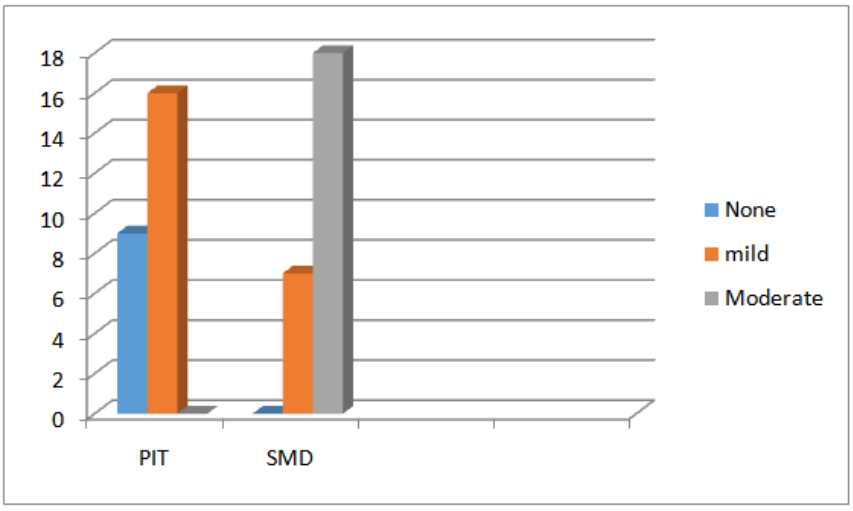

Fig : distribution of patients having edema in two groups

In SMD patients complained of nasal blockage on the 1st day post operative . on examination it was found that their was tissue oedema which caused obstruction . 3 patients continue to have nasal blockage which was relieved by day 7th.

C . Pain

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	percentage	Number of patients	Percentage	Number of patients	percentage
Pain						
None						
Mild	8	32%	19	76%	27	54%
Moderate	17	68%	6	24%	23	46%

P value <0.05 and is significant

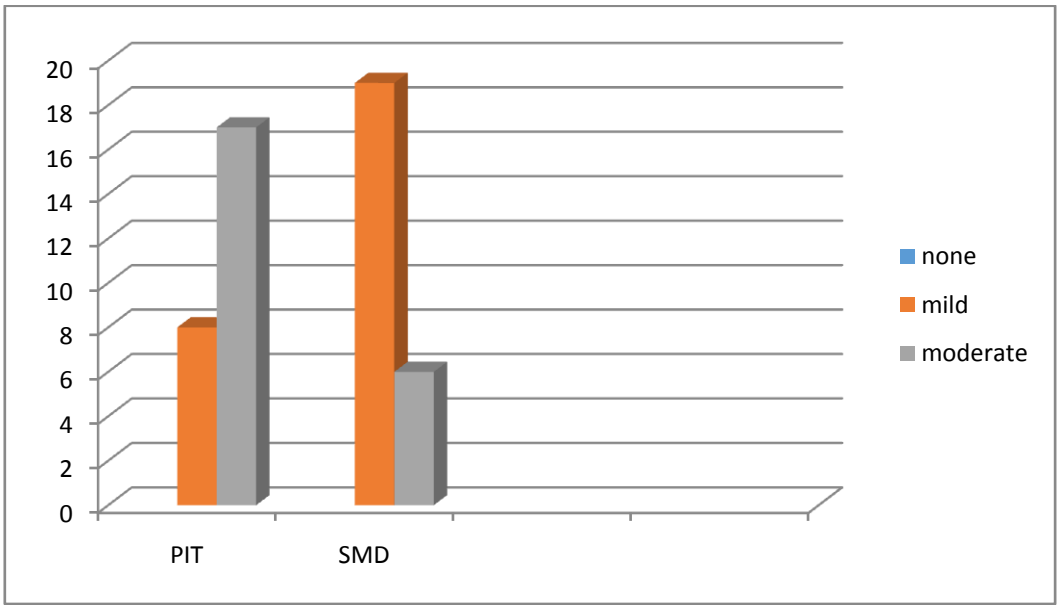

Fig : distribution of pain in two groups

In partial inferior turbinectomy 8 patients complained of mild pain ,17 patients had moderate pain .But in SMD patient 19 patients had mild pain , and 6 patients had moderate pain.

Table 4 :- Day 7 post operative assessment:

A. Healing

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	Percentage	Number of patients	Percentage	Number of patients	percentage
Healing						
Good	9	36%	19	76%	28	56%
Moderate	12	48%	6	24%	18	36%
Poor	4	16%			4	8%

P value < 0.05 and is significant

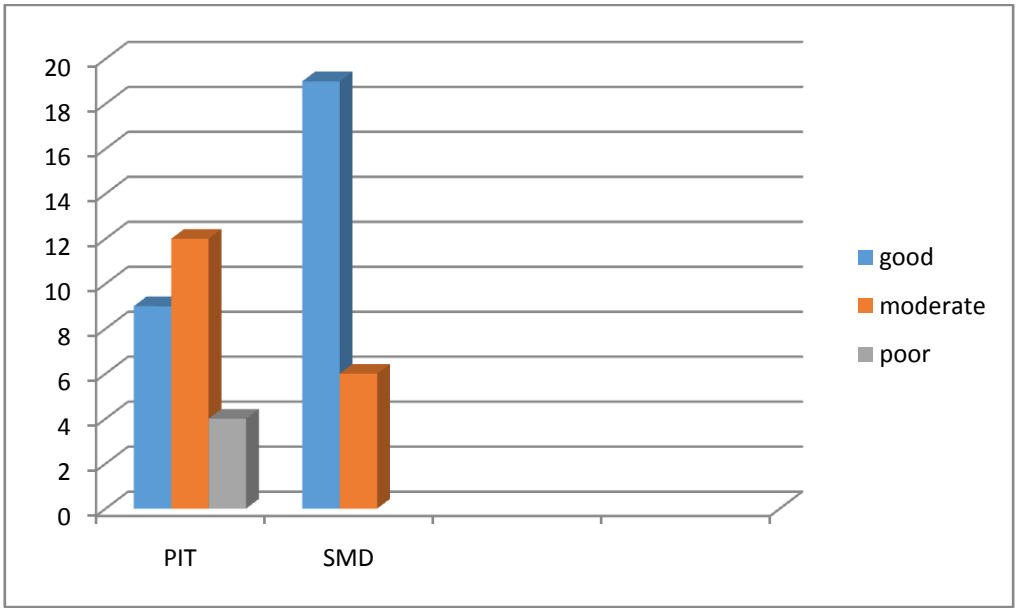

Fig : distribution of healing in both groups

Post operative healing was a bit delayed in partial inferior turbinectomy as compard to submucosal diathermy . Complete apposition of mucosal flap in partial inferior turbinectomy took 7 days whereas in submucosal diathermy the tissue was completly healed by 4 day itself.

B. Crust formation

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	Percentage	Number of patients	Percentage	Number of patients	percentage
Crust formation None Moderate	 2 23	 8% 92%	 21 4	 84% 16%	 23 27	 46% 54%

P value <0.05 and is significant

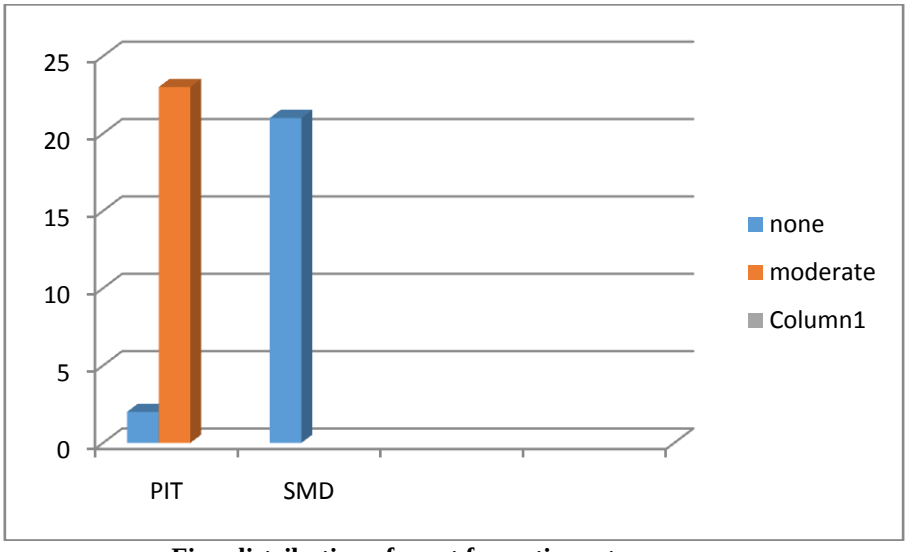

Fig : distribution of crust formation n two groups

In PIT patient had nasal patency from 1st day post operative after removing of anterior nasal packing. 10 patient had blockage due to blood clots and severe crust formation . Rest of the patient had mild blockage due to crust.

C. Nasal patency

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	Percentage	Number of patients	Percentage	Number of patients	percentage
Nasal patency						
Poor						
Moderate						
Good	12	48%	6	24%	18	36%
	13	52%	19	76%	32	64%

P value <0.05 and significant

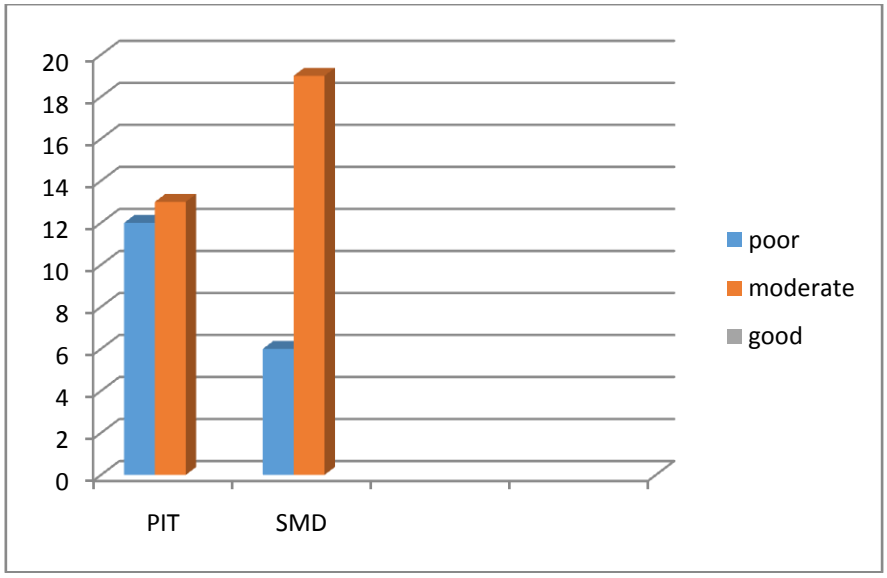

Fig : distribution of nasal patency in two groups

Table 5 : - Day 14 post operative assessment:

A. Dryness

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	Percentage	Number of patients	Percentage	Number of patients	percentage
Dryness						
None			25	100%	25	50%
Mild	18	72%			18	36%
Moderate	7	28%			7	14%

P value <0.05 and is significant

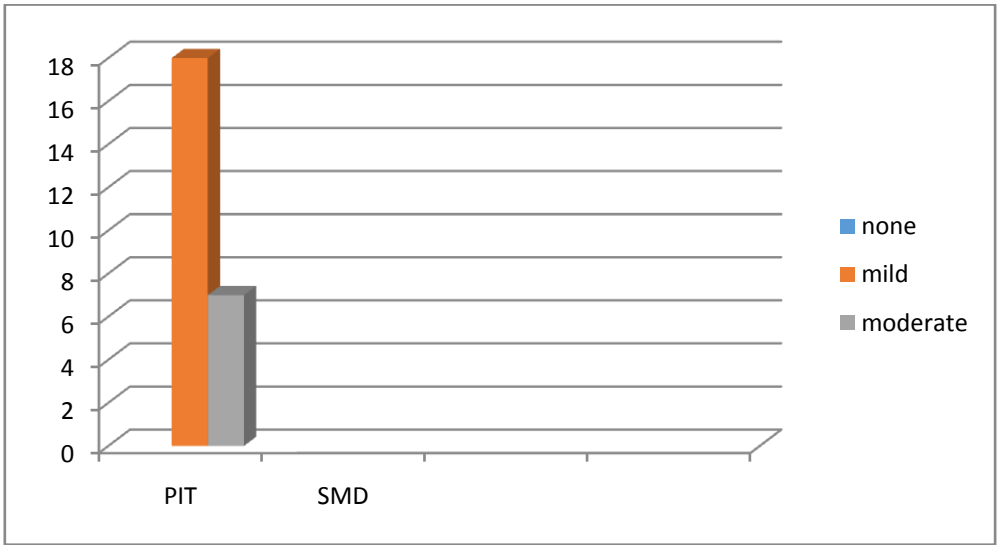

Fig : distribution of nasal dryness in two groups

B. Roomy nose

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	Percentage	Number of patients	Percentage	Number of patients	percentage
Roomy nose None Mild Moderate	 22 3	 88% 12%	 25	 100%	 47 3	 94% 6%

P value <0.05 and is significant

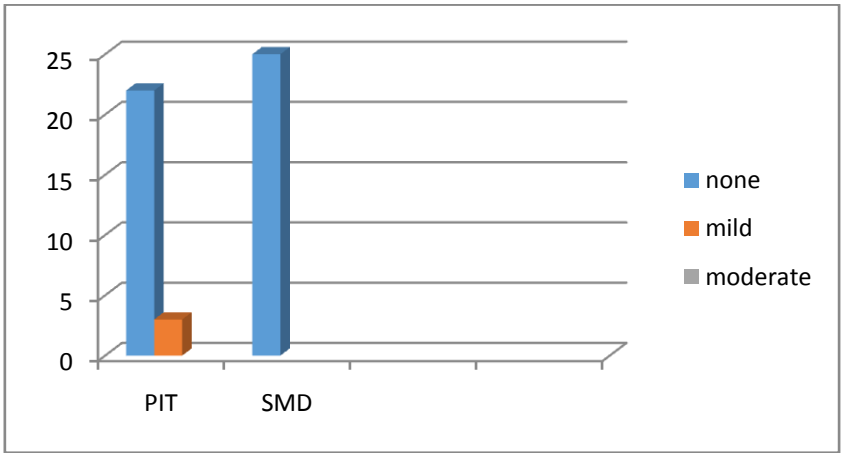

Fig : distribution of roomy nose in two groups

C. Nasal patency

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	Percentage	Number of patients	Percentage	Number of patients	percentage
Nasal patency Poor Moderate Good	 25	 100%	 6 19	 24% 76%	 6 44	 12% 88%

P value >0.05 and is insignificant

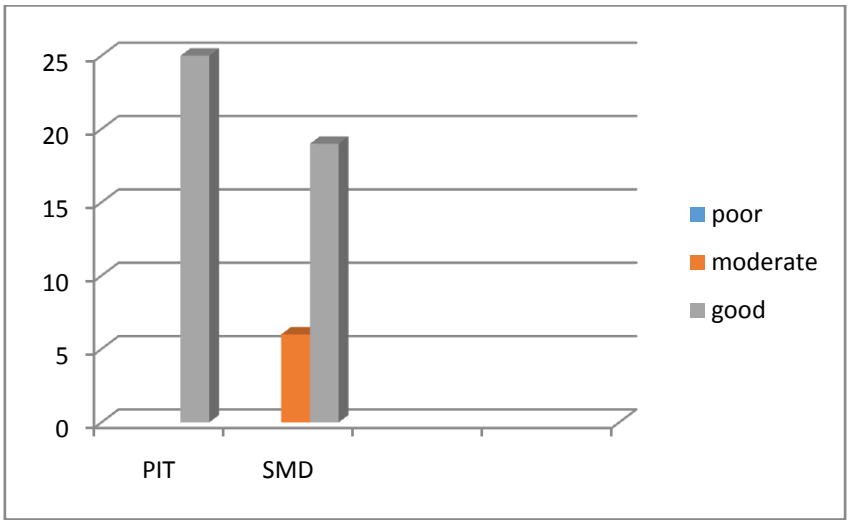

Fig : distribution of nasal patency in two groups

Table 4 :- Day 30 post operative assessment:

A. Atrophic rhinitis

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	Percentage	Number of patients	Percentage	Number of patients	percentage
Atrophic rhinitis Present Absent	 1 24	 4% 96%	 25	 100%	 1 49	 2% 98%

P value >0.05 and is insignificant

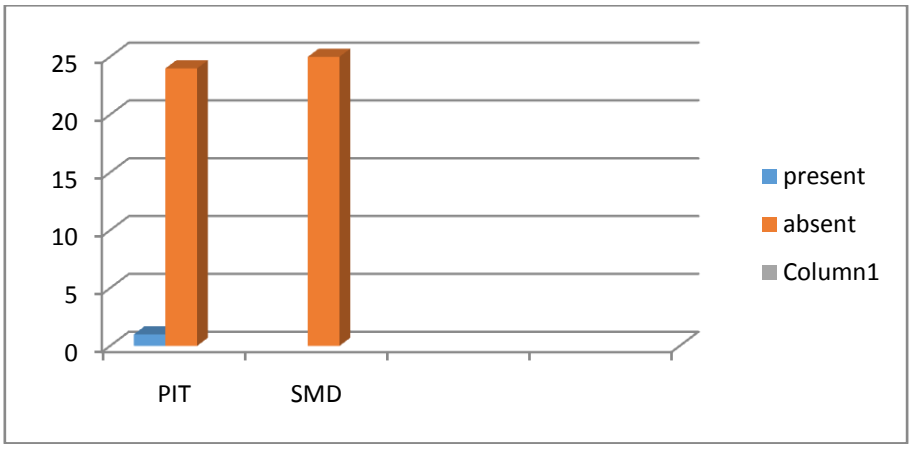

Fig :distribution of atrophic rhinitis in two groups

A. Nasal patency

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	Percentage	Number of patients	Percentage	Number of patients	percentage
Nasal patency Poor Moderate Good	 2 23	 8% 92%	 6 19	 24% 76%	 8 42	 16% 84%

P value >0.05 and is insignificant

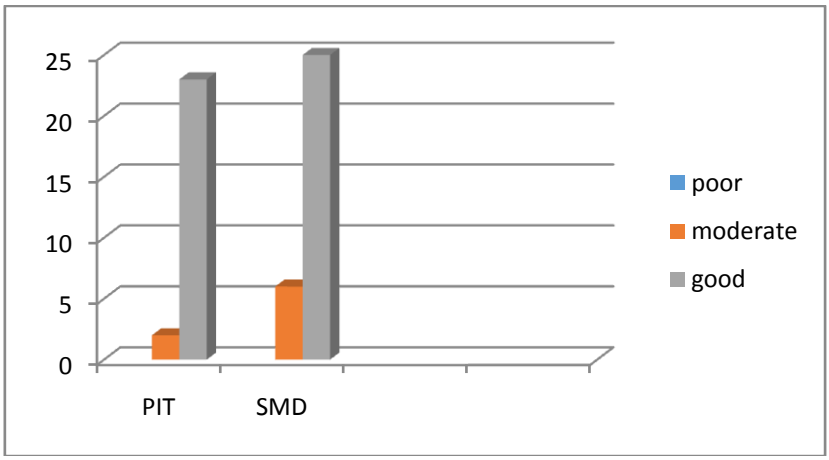

Fig : distribution of nasal patency in two groups

B. Nasal cavity size

Assessment	Partial inferior turbinectomy		Submucosal diathermy		Total	
	Number of patients	Percentage	Number of patients	Percentage	Number of patients	percentage
Nasal cavity size Increased Same	 25	 100%	 22 3	 88% 12%	 47 3	 94% 6%

P value >0.05 and is insignificant

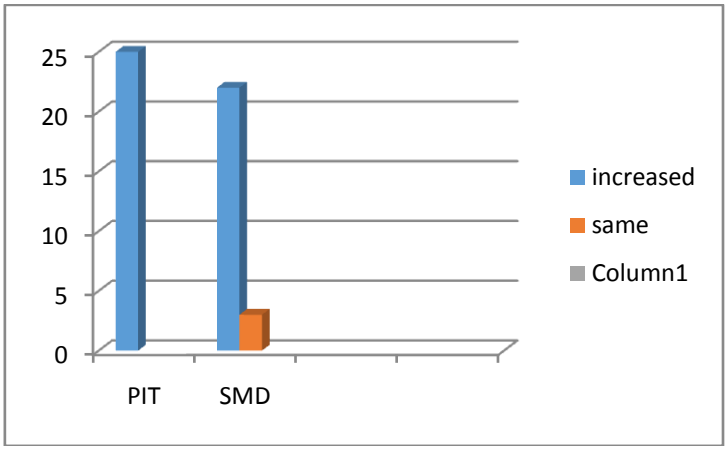

Fig : distribution of nasal cavity size in two groups

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III. Discussion

Partial turbinectomy is a procedure developed to remove the anterior part of the inferior turbinate. It is directed at relieving obstruction at the nasal valve, while leaving a portion of the turbinate to continue its function of air conditioning. Partial inferior turbinectomy is an older procedure as compared to submucosal diathermy . But partial inferior turbinectomy is associated with increase post operative bleeding , pain and crust formation and also increase in time required for tissue healing post operatively.

In submucosal diathermy all the post operative paramaters i.e bleeding ,pain , crust formation and time required for tissue healing are less, but the tissue edema was more as compared to partial inferior turbinectomy. So initially some of the patients complained of nasal obstruction which got relieved within 1 week.

Submucosal diathermy is a simple procedure which can be done easily. Moreover diathermy is an easily available procedure instrument and there is not much expenses involved in this surgery , hence it is cost effective too.

So we can conclude that submucosal diathermy is much better option then partial inferior turbinectomy

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