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Modified Young's procedure: a forgotten procedure in rhinology.

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Abstract:

Background: Modified Young's procedure (MYP) was a popular procedure for primary atrophic rhinitis. The classical Young's procedure was not tolerated well since its inception and a modification popularly known as the "Modified Young's procedure" was introduced. The complete closure of the nostrils were not well tolerated as most of the patients disliked mouth breathing and also the nasal voice.

Material and methods: We report a case series of MYP done in 17 cases of primary atrophic rhinitis under general anaesthesia. Bilateral procedures were done in all patients who tolerated it well. The polythene tube buttons were removed after 7 days.

Results: Mean duration of follow up was 15.11 months, with good symptoms improvement. Recanalization was done in 6 cases with 3 cases had concurrent multisinusitis with severe headaches and CECT PNS confirming it. The 3 patients were operated with endoscopic sinus surgeries after recanalization with minimal decongestant measures and microdebrider drill to remove the sclerosed walls of the maxillary sinuses.

Conclusion: Modified Young's procedure is a forgotten entity in rhinology as the incidences are decreasing and the modes of delivery of medications intranasally are becoming easier and compliant. However in resistant and noncompliant patients MYP with periodic nasal endoscopy can be very rewarding.

Keyword 1: Modified Young's procedure
Keyword 2: Vestibuloplasty.
Keyword 3: nasal endoscopy.
Keyword 4: recanalization.

Introduction:

Modified Young's procedure (MYP) was a popular procedure for primary atrophic rhinitis (AR). [1] The classical Young's procedure was not tolerated well since its inception and a modification popularly known as the "Modified Young's procedure" was introduced.[2,3,4] The complete closure of the nostrils were not well tolerated as most of the patients disliked mouth breathing and also the nasal voice. [5] The modified procedure of leaving a 3mm hole was well tolerated with comparable results of the original procedure when followed up over 2 years.[6] A lesser radical procedure was developed called the vestibuloplasty, which was basically elevating the lateral vestibular mucosa and folding it on itself partially blocking the lateral half of the nostril still allowing the nasal breathing. [7]

MYP still remains a surgical procedure preferred for medically resistant and noncompliant AR patients. With the improvement in miniature nasal endoscopy, MYP can be well tolerated when done bilaterally.

Methods:

This is case series study done over a period of 88 months from Jan 2007 to Jan 2013. All the cases operated with the procedure were included in the study. There were 17 cases in the study which included 14 females and 3 males. All were examined and were put on medical line on treatment for 6 months and when the symptoms did not subside completely and the patients could not sustain the procedure of daily cleaning and douching, they were advised surgery. Prosthesis were also tried but was of vain.

The average age group in females were 34.7 yrs and in males were 33.7 years. The average duration of symptoms was 20.7 months. All the patients were imaged by Contrast enhanced CT PNS. (fig 1) All the parameters including the mucosal thickness were noted. All the cases posted for surgery were given alkaline nasal douching for the previous week and complete nasal endoscopic cleaning of the cavities with trimming of the vestibular hairs the previous day. All the procedures were done under general anaesthesia with orotracheal South Pole tube intubation. Bilateral procedure was done in all the patients and the mouth breathing were explained well to them post surgically. The roomy cavities were cleaned and the vestibular area was infiltrated with 2% xylocaine with 1; 200,000 epinephrine and the mucosal junction of the nasal septum. The injection creates blanching of the nasal lining

which provide haemostasis while incision and dissection. The round surgical incision (fig 2) was placed slightly posterior to the mucocutaneous junction.

The inner mucosal flaps require less mobilization than the outer skin flaps, which are also hard to visualize during surgery. The medial septal and the lateral vestibular flap was freely mobilised without tension. The anterior flap was reflected for 7-8 mm and the posterior flaps reflected 5 mm on either side. The dissection was meticulous with lesser button holing. The posterior layer is sutured with 4-0 vicryl sutures with the knots anteriorly with a 3mm polythene tube in the centre. (fig 3) Later the anterior mucosal flaps are sutured with the same vicryl suture with the tube out in the centre. Dressing of the nostrils were done and sent was discharged after 3 days. This is the double breasting technique where the thin atrophic flaps are sutured meticulously. Adequate reflection of the flaps are necessary as more stretched the flaps are chances of suture tear, cut through increases and also dimpling of the alae results or the curve of the vestibule. The tube is removed after 7 days and the ointment dressing done every day to the nasal vestibule, weekly nasal endoscopic examination after tube removal with 2.7 mm paediatric nasal endoscope.

All the patients were given nutritional and iron supplementation and followed up every month. No complication was seen in the study group.

Results:

All the polythene tube stent buttons were removed after 7 days. Mean duration of followup was 15.11 months, monthly improvements on DNE were satisfactory. Symptoms improvement were also very good and mucosal biopsy was done after six months of the procedure which showed improvement.(fig 5) Recanalization was done in 6 cases with 3 cases had concurrent multisinusitis with severe headaches and CECT PNS confirming it. The 3 patients were operated with endoscopic sinus surgeries after recanalization with minimal decongestant measures and microdebridor drill to remove the sclerosed walls of the maxillary sinuses.(table 1) The patient had no problems adapting to mouth breathing as the polythene tube buttons, were patent and maintained well.

Discussion:

Primary AR is a chronic nasal disease with progressive atrophy of the mucosa and underlying bone of the turbinates. [5] Nasal cavity shows foul smelling crusts associated with anosmia. [5] The etiology could be infections, hormonal dysfunction, dietary deficiencies, vascular disease, nutritional disorders, autonomic dysfunction and autoimmune diseases. [5] Apart from the medical line of treatment which include alkaline nasal douching and nasal hygiene definite surgical treatment also are not without complication. [3] So satisfactory management have been proposed for this condition while still the alkaline nasal douching if performed on a regular basis can control it to a larger extent. [3] Many conservative surgical procedures like acrylic nasal implants in the floor and lateral wall, injection of teflon paste, insertion of cartilage, fat or bone pieces in the floor and lateral wall were tried with little success.[3] Young's described the procedure of closing the nostril by suturing the flaps

elevated from the vestibule and the mucocutaneous septum and suturing them in the middle.[8] So the closure will be complete for months and the mucosa will rejuvenate and the atrophic process will reverse.[8]

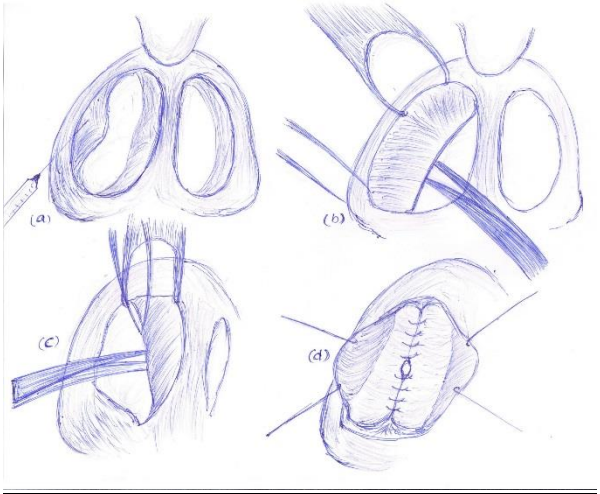
Vestibuloplasty is a modification of MYP is elevating the flaps of the vestibule and folding on itself thus redirecting the inspiratory air current towards the septum and more importantly away from the lateral wall of the nose thus protecting the lateral wall mucosa of the nose.[7] It reduces the damage due to the theory of reflex sympathetic dystrophic syndrome which proposes the impingement of inspiratory air current on the lateral wall mucosa of nose and turbinates, to be the ultimate factor causing damage in form of collapse, atrophy and crusting of the already weakened turbinates due to hyperaemic decalcification.[7] The mucosal changes are not as appreciable as seen in MYP but better tolerated by the patient, the nasal cavity can be douched and maintained by the patient, technically and cosmetically easier compared to MYP. Vestibuloplasty can be performed on both nostrils easily without problems of mouth breathing.[7] The 3 mm hole is well tolerated in MYP and more wider is less successful, hence the procedure of vestibuloplasty has become obsolete and even converting it into MYP is very difficult.[5]

MYP can be combined with minor corrections of the nasal bridge as saddle deformities are common in these long standing cases. [1] The septal cartilage and the nasal bones soften due to high mucosal alkaline phosphatase levels. [1] Rhinoplasties and nasal surgeries are difficult as postoperative infection and flap failure are more common.[1] Proper precaution with a thorough knowledge of the disease process helps prevent complications in these procedures. [1,9] Bone grafts for augmentation never work as it will be absorbed faster than normal individuals, implants extrude easily and so never used. [1,9] External nose deformities correction can be clubbed with MYP to halt the disease process from depressing the septum more. The MYP closure is advised in a single layer flap as recanalization will be easier later and the septal elevation which will support the augmentation will not be destabilised. [1,10,11] Skin flap elevation is difficult as the infiltration cannot be used much and the puckered skin is adherent and separating and defining the cartilages are very difficult. [1,10,11] Damage to the skin flaps are more and hence they never tolerate the implants and also the cartilage very poorly. Rib cartilage can be used for augmentation. Septoplasty if done should be with minimal elevation of the mucoperichondrium and minimal resection of the septal cartilage.[1,10,11]

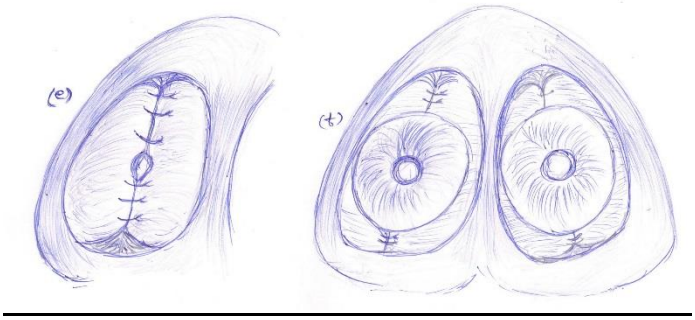
Osteotomies are less rewarding if done partial and infracturing can displace the turbinates and narrow the airway distally. Complete radical osteotomies are to be done as mobilization and correction by incomplete osteotomies may be promising earlier but recurrence of the deformity takes place with contraction of the fibrous tissue later within months. [1,12] Revision osteotomies should never be tried as severe bruising and swellings produce periorbital hematoma. [1,12] No open procedures are advised to keep the tissue handling to minimal and no dramatic results should be promised to the patients. [1,13]

Conclusion:

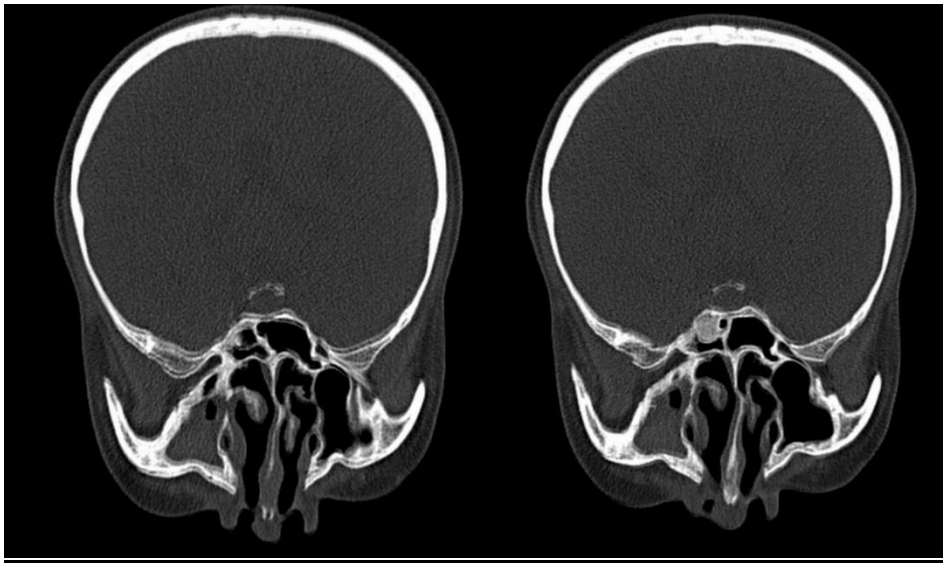
Modified Young's procedure is a forgotten entity in rhinology as the incidences are decreasing and the modes of delivery of medications intranasally are becoming easier and compliant. However in resistant and noncompliant patients MYP with periodic nasal cavity endoscopy can be very rewarding.



Schematic diagram showing (a) vestibule and septal infiltration, (b) elevation of the vestibular flap, (c) elevation of the septal flaps, (d) suturing the deeper flaps with 3 mm opening

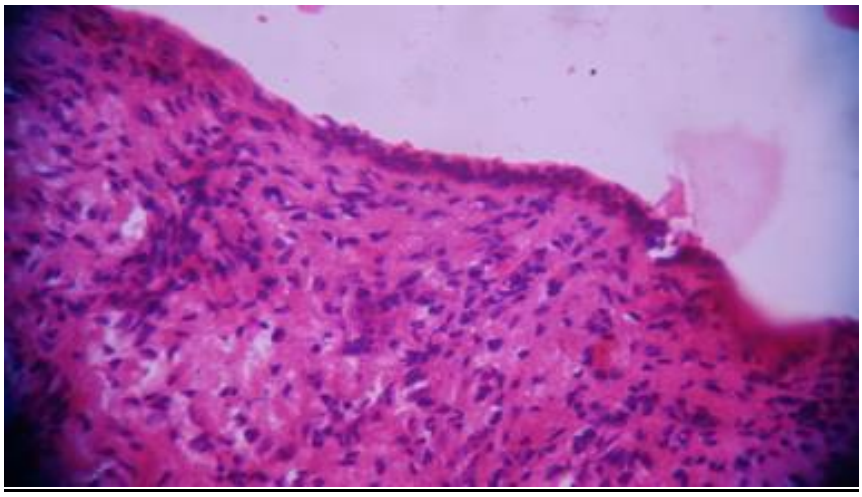


(e) the superficial flaps are sutured as double breasting (f) the 3 mm polythene funnel shaped aperture introduced without sutures



Axial CT sections showing the MYP

MYP results seen on anterior rhinoscopy



Mucosal improvement seen on endoscopic biopsy

Pt no	age	sex	Duration of symptoms (mon)	Medical line for	Earlier operation	Obturators tried	Procedure done	Follow up (months)	failure	DNE + mucosal improvement	Symptoms improvements	Recanalization done
1	22	F	22	7	no	no	MYP	14	no	Obvious improvement	Good improvement	No
2	32	F	13	12	no	no	MYP	22	no	Obvious improvement	Minimal improvement	Yes + ESS for multisinusitis
3	36	F	8	20	no	no	MYP	13	no	Obvious improvement	Good improvement	No
4	41	F	16	12	no	no	MYP	16	no	Obvious improvement	Good improvement	No
5	23	M	23	12	no	no	MYP	17	no	Obvious improvement	Good improvement	No
6	34	F	21	15	no	yes	MYP	21	no	Obvious improvement	Good improvement	No
7	44	F	24	14	no	no	MYP	23	no	Obvious improvement	Minimal improvement	Yes + ESS for multisinusitis
8	44	F	13	13	no	no	MYP	8	no	Obvious improvement	Good improvement	no
9	51	M	22	16	no	no	MYP	9	yes	Obvious improvement	Good improvement	No
10	38	F	14	21	no	no	MYP	11	no	Obvious improvement	Minimal improvement	Widening done
11	23	F	21	19	no	yes	MYP	22	no	Obvious improvement	Good improvement	Yes
12	25	F	24	18	no	no	MYP	23	no	Obvious improvement	Good improvement	Yes
13	27	M	23	6	no	no	MYP	19	no	Obvious improvement	Good improvement	Yes
14	27	F	23	11	no	no	MYP	10	no	Obvious improvement	Minimal improvement	Yes + ESS for multisinusitis
15	39	F	27	15	no	no	MYP	18	no	Obvious improvement	Good improvement	No
16	40	F	30	14	no	yes	MYP	5	no	Obvious improvement	Good improvement	No

17	41	F	28	20	no	no	MYP	6	no	Obvious improvement	Good improvement	No

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