

Avaliação do Emprego do Subgalato de Bismuto no Tamponamento Nasal Anterior após Cirurgia Nasal

Evaluation of Bismuth Subgalate in Nasal Packing after Nasal Surgery

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RESUMO

- Introdução:** Para a cirurgia nasal, o tamponamento nasal de gaze é o método classicamente utilizado para o controle do sangramento. A aplicação do subgalato de bismuto como agente hemostático já foi demonstrada em vários estudos experimentais e na cirurgia de adenoamigdalectomia. O seu emprego como agente hemostático no nariz ainda não foi demonstrado na literatura.
- Objetivo:** Avaliar o emprego do subgalato de bismuto no tamponamento nasal anterior após cirurgia nasal, comparando a evolução pós-operatória quanto ao sangramento e às possíveis complicações, com acompanhamento de 30 dias.
- Métodos:** Foram operados 18 pacientes atendidos consecutivamente com diagnóstico de desvio de septo nasal e rinite crônica hipertrófica. O emprego do subgalato de bismuto no tamponamento foi randomizado para cada fossa nasal de cada paciente. Este foi avaliado com 0, 1, 7, 14 e 30 dias de pós-operatório, quanto ao quadro clínico (dor, ardência, prurido, epífora, epistaxe, hiposmia, obstrução nasal) e à rinoscopia anterior (edema, crostas, sinéquia) por um outro otorrinolaringologista (“cego”).
- Resultados:** Na comparação pós-operatória, houve predomínio das seguintes queixas subjetivas pelos pacientes na fossa nasal em que o subgalato de bismuto foi empregado: dor, prurido, edema, obstrução, crostas e sinéquia (com significância estatística nos últimos três). Não houve diferença com relação ao sangramento após a retirada do tampão anterior.
- Conclusão:** O emprego do subgalato de bismuto no tampão nasal anterior após cirurgia nasal, em 30 dias de acompanhamento, apresentou mais complicações, sem aumentar o benefício, sendo desencorajado o seu uso.
- Unitermos:** turbinectomia, septoplastia, tampão nasal, subgalato de bismuto.

SUMMARY

- Introduction:** For nasal surgery, packing with gauze is the classic method used for bleeding control. The application of bismuth subgalate as a haemostatic agent was already demonstrated in several experimental studies and in

	adenotonsillectomy. Its employment as haemostatic agent in the nose was not still demonstrated in the literature.
Objective:	To evaluate the employment of bismuth subgalate in nasal packing after nasal surgery, comparing the postoperative evolution in relation to bleeding and possible complications, with 30 days follow up.
Methods:	Eighteen patients consecutively assisted with diagnosis of nasal septum deviation and chronic hypertrophy rhinitis were submitted to surgery. The employment of bismuth subgalate in the packing was randomized for each nasal fossa of each patient. They were evaluated with 0, 1, 7, 14, and 30 days of follow up, in relation to the clinical signs and symptoms (pain, ardenscies, itching, epiphora, epistaxis, hyposmia, nasal obstruction) and to anterior rhinoscopy (edema, crusts, synechia) by another otolaryngologist ("blind").
Results:	In the postoperative comparison, there was prevalence of the following subjective complaints in the nasal fossa in which bismuth subgalate was used: pain, itching, edema, obstruction, crusts and synechia (with statistical significance in the last three ones). There was no difference in relationship to the bleeding after the retreat of the packing.
Conclusion:	The employment of bismuth subgalate in anterior nasal packing after nasal surgery, in 30 days of follow-up, presented more complications, without increasing the benefit, hence being discouraged its use.
Key-words:	turbinectomy, septoplasty, nasal packing, bismuth subgalate.

INTRODUCTION

Post-surgery bleeding is one of the most feared complications on otorhinolaryngology surgery procedures and, probably, it might be the main cause of urgency assistance after surgery (1).

Adenotonsillectomy and septoplasty associated to bilateral inferior parcial turbinectomy are the most common surgeries made by ENT doctors nowadays (2). They present high satisfactory results, though they can also present bleeding as serious complication post-surgery period.

The application of bismuth subgalate as hemostatic agent has already been demonstrated in several experimental studies and on adenotonsillectomy surgery (3,4). For nasal surgery, nasal packing with gauze is a classic method used for bleeding control (1,5).

Therefore, we have evaluated the use of bismuth subgalate on anterior nasal packing after nasal surgery, comparing post-surgery evolution in relation to for bleeding and possible complications, with 30 days of follow-up.

PATIENTS AND METHODS

Patients

In September 2001, 18 patients underwent operation and were assisted consecutively at *Serviço de Otorrinolaringologia da Universidade Federal de Uberlândia* with diagnosis of nasal septal deviation and hypertrophic chronic rhinitis. The inclusion criteria were: chronic nasal obstruction, lack of previous nasal surgical treatment, non-satisfactory exhaustive clinical treatment, free rhinopharynx. The exclusion criteria were: nasal polyp, adenoid hypertrophy, nasal-sinusal and nasal-pharynx tumors.

Method

During pre-surgery appointment, the patient was examined by an ENT doctor, who analyzed the clinical history and made otorhinolaryngology physical exam and nasofibroscoy.

The surgery (septoplasty associated to bilateral inferior parcial turbinectomy) was done with anterior nasal packing placement for 24 hours. In one of the nasal cavities, it was placed a packing without bismuth subgalate.

The patient was evaluated during 0, 1, 7, 14 and 30 days after surgery (PS – post-surgery), according to clinical conditions (pain, ardencies, itching, epiphora, epistaxis, hyposmia, nasal obstruction) and to anterior rhinoscopy (eodema, crusts, synechia) by another ENT doctor, who was not aware of which nasal cavity the packing with bismuth subgalate was applied in.

Surgical Technique

All surgical procedures were done under local anaesthesia: sedation and analgesia; topic anaesthesia with tetracaine 2% + oxyetazoline 0.5%; extravascular anaesthesia infiltration with bupivacaine 0.5% + epinephrine 1:80.000 on the infra-orbital foramen, internal corner of the eye, nasal vestibule, ethmoidal ceiling and by along the septum of the nose and inferior nasal concha (6).

Septoplasty was done in flowing way: exposure of the caudal area of quadrangular cartilage with the aid of nasal speculum at concave side of deviation; incision of preseptal mucosa; submucopericondral displacement; removal of quadrangular cartilage lamina which is perpendicular to the floor measuring about from 2 to 3mm of length at floor level and 1mm on nasal ceiling, where maximum deflection of deviation occurred; removal of other quadrangular cartilage laminas if needed; removal of osseous-cartilaginous spur with chisel of 3mm; removal of part of perpendicular lamina of ethmoid which was deviated; suture with simple catgute 4-0 (7).

Inferior parcial turbinectomy was done in following way: parcial marking and division in a longitudinal way of inferior nasal concha using Knight scissors; removal of the divided portion (including head, body and stem) with Takahashi tweezers; electrical cauterization on bleeding area with high frequency; lateral breaking of the remaing portion of the inferior nasal concha (2).

After surgical procedure, anterior nasal packing was done for 24 hours with gauze and neomicyn cream. Bismuth subgalate was associated on packing from one nasal cavity.

Statistical Analysis

In order to verify statistical significance between the two surgical methods, it was done χ^2 test or accurate Fisher test. It was considered statistically significant when $p < 0.05$.

Esthetic Aspects

The Ethics Committee from our institution approved this study. All patients signed a clear and well-informed authorization.

RESULTS

18 patients underwent surgery. 9 of them (50.0%) were female and the other 9 (50.0%) were male, all aging from 15 to 48 year (with average of 28. 7 years).

On post-surgery comparison, there was a predominance of subjetive complaint by the patients over nasal cavity on which bismuth subgalate was placed on nasal packing under the following symptoms: pain, itching, obstruction (with statistical predominance on 14^o PS – post-surgery period) and ardencies (with statistical predominance on imediate PS, 1^o PS and on general total of evaluations). There was no difference in relation to PS bleeding anterior packing removal (Table 1).

In relation to subjective evaluation by the ENT doctor, over the nasal cavity in which bismuth subgalate was applied, there was a greater incidence of oedema, crusts (with statistical predominance on 30° PS) and synechia (with statistical predominance on 14° PS) (Table 1).

DISCUSSION

Bilateral partial turbinectomy surgery of the inferior nasal conchas is very common nowadays in Otorhinolaryngology routine. Its efficacy and safety have been showed by several studies (2,8-11). It can be recommended as an isolated procedure or associated to other surgeries in different diseases of nasal cavity, especially on those of obstructive feature. It also presents post-surgery bleeding, infections, crusts, synechia and pains as more frequent complications (2,12).

Nasal packing, nasal splint, Gelfoam[®], Merogel[®], etc (8-13) have been described in the literature as techniques with the purpose of improving post-surgery recover and reducing or avoiding such complication.

Bismuth subgalate is heavy unsolvable, poor absorption and high astringent capacity metal (3). According to the studies by THOKIDOTTIK AND COL (14), it was demonstrated that this metal works on coagulation cascade, through extrinsic pathway, more specific on factor XII, causing, thus, acceleration on hemostatic activity. Beside this evidence, it is believed in its astringent effect over bloody area. Neither side nor toxic effect has been described in the literature as hemostatic agent. (15).

In other studies' authors, in relation to the effectiveness of surgical method and percentage of post-surgery bleeding, it was demonstrated by MANIGLIA AND COL (1989) the extreme effectiveness of bismuth subgalate as a coadjuvant agent on adenotonsilectomy, reaching a rate of 0.28% of bleeding in the post-surgery period, in a total of 1.428 cases (3). In one of the studies by MOLINA AND COL (2000), the rate in the post-surgery period was 0.33% in a total of 307 cases. This was satisfactory compared in the literature (16).

The use of bismuth subgalate on the nose as a hemostatic agent had not already been described in the literature. Different nasal packings and chemical substances were described and applied during post-surgery period of nasal operation: gauze soaked in furacin (17), paraffin or gauze with vaseline (18), gauze with creams and antibiotics (19), internal "splints" which support fractures of nose bones (20), combination of an internal and external holder, through transcutaneous fixation (21), plastic mould of serum bottle (1), and others.

In this study, although there was a low number of patient, we have seen an increase of complications such as crusts, synechia and oedema, pain complaints, itching and obstruction when applying bismuth subgalate. In statistic evaluation, the presence of ardencies, obstruction, crusts and synechia was higher when bismuth subgalate was used ($p < 0.05$).

At the same time, the use of bismuth subgalate did not alter the incidence of post-surgery bleeding after anterior packing removal. So, there was no benefit when applying this chemical agent.

The effectiveness of bismuth subgalate as a hemostatic agent had already been questioned by some authors, especially HATTON (2000), who demonstrated that all works in which this agent was efficacious, there was an association of epinephrine in its preparation (22). In this study, we have not use epinephrine when preparing bismuth subgalate.

The use of anterior nasal packing after nasal operations is not part of our routine. We have restricted its use only for cases of posterior and/or anterior epistaxis when a patient does not present clinical conditions in order to be submitted to ligation/cauterization surgery of bleeding vessel. Therefore, many ENT doctors support the use of packing after surgery. So, this work is important to demonstrate the deleterious effect of bismuth subgalate and, thus, discourage its use.

Despite the experimented technological advances by Otorhinolaryngology since the first exams up to surgical treatment, it has not been able to establish safe and efficacious procedures in order to prevent hemorrhage, synechia and crusts after surgery of inferior nasal conchas, representing main the complications after surgeries (2).

CONCLUSION

The comparison between bismuth subgalate use on anterior nasal packing after nasal operation demonstrated an increase on pain, itching and obstruction and complications as crusts, synechia and oedema, and, at the same time, did not raise alterations on post-surgery bleeding incidence.

We concluded that the use of bismuth subgalate on anterior nasal packing after nasal operation, in 30 days of follow-up, presented more complications, without increasing its benefit, though its use was discouraged.

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Table 1. Evaluation of bismuth subgalate use on anterior nasal packing after nasal operation, during 0, 1, 7, 14 and 30 days after surgery.

Clinical Conditions	Post-Surgery Days (PD)										Total	
	PD i		1 ^o PD		7 ^o PD		14 ^o PD		30 ^o PD			
	With	Without	With	Without	With	Without	With	Without	With	Without	With	Without
Pain	5	2	4	3	0	4	1	1	0	0	9	8
Ardencies	8*	1*	7*	1*	4	3	4	1	0	0	13*	5*
Itching	4	2	4	1	3	1	2	1	1	1	8	3
Epiphora	8	9	3	3	0	0	0	0	0	0	5	5
Bleeding	4	2	4	5	3	1	1	1	0	0	5	5
Hyposmia	-	-	1	1	0	0	1	1	1	1	2	2
Obstruction	-	-	5	9	9	8	9*	1*	3	1	13	12
Eodema	-	-	9	5	6	4	1	2	0	0	12	9
Crusts	-	-	-	-	10	6	6	3	7*	1*	13	8
synechia	-	-	-	-	0	1	7*	1*	2	2	8	3

* p<0.05