

Volume 3 | Issue 1 | November 2009



J SPIK



Journal of the
Society of
Periodontists &
Implantologists of
Kerala

GENERAL ANESTHESIA

AN OPTION FOR PERIODONTAL SURGERY

A case report



Dr. Betsy S Thomas*



Dr. Amit Garg**



Dr. Swati ***

Key words:

Gingival hyperplasia, gingivectomy, general anesthesia

Abstract:

Gingival hyperplasia is a recognized side effect in individuals on anti-convulsant therapy, the management of which is complex. Most of these procedures are carried out in outpatient setting under local anesthesia. The use of general anesthesia as an option for periodontal procedures like gingivectomy is very rare. It is an option when surgery is likely to be prolonged or requires carrying out in multiple stages because of the generalized extensive gingival growth and more so when patient is apprehensive or less cooperative. Presenting a case where the use of general anesthesia was necessitated for gingivectomy since a full mouth surgery was required and the patient was apprehensive.

Introduction:

Periodontal surgeries are wide ranging and many of these procedures are time consuming. Most of these procedures are carried out in outpatient setting under local anesthesia. There are occasions when conscious sedation is used as a second choice. But, use of general anesthesia is very rare for periodontal surgery.

Presenting a case where use of general anesthesia (GA) was necessitated for gingivectomy, and a brief review of such periodontal situations where GA would be required and the requisite procedure(s) to be followed when it is utilised.

Case report:

A 17-year-old mentally challenged girl reported to the department of Periodontics, with complaints of swollen gums, difficulty in eating and an inability to carry out routine oral hygiene procedures.

On examination she was found to be moderately built and was deaf and dumb. History reveals similar gum swellings noticed when she was of 5 and 11 years, requiring excision to let the deciduous and permanent teeth, respectively, to erupt. The last surgical intervention was two and a half years back. Her parents gave history of convulsions in her since she was of 2 years age and she was on Diphenyl hydantoin since then. But, a history of change in the drug to Sodium valproate since 18 months was reported.

On oral examination, firm and fibrotic gingiva was seen covering 2/3rd of the crown surfaces especially in the lower anterior region. There was evidence of minimal inflammation in the lower anterior region. Drifting of anterior teeth was also noticed due to fibrotic enlargement. (Fig.1). Orthopantomogram revealed impacted 3rd molars and erupting 2nd molars. But, there was no evidence of periodontal bone loss. (Fig.2).

Supragingival scaling was performed and gingivectomy was planned under general anesthesia since a full mouth surgery was required and the patient was apprehensive.

After due preoperative workup and consent procedures, under induction anesthesia, single long ribbon

*Professor, Department of Periodontics, Manipal College of Dental Sciences, Manipal

**Assistant Professor, Department of Periodontics, Manipal College of Dental Sciences, Manipal

***Postgraduate, Department of Periodontics, Manipal College of Dental Sciences, Manipal

gauze was placed as a throat pack to prevent the aspiration of any fluid, blood or debris. Gingivectomy was carried out on the maxillary and mandibular anterior teeth both on the labial and lingual/ palatal surfaces. It was carried out using bard parker blades, no. 11 and 15, gingivectomy knives (Kirkland and Orbans) and curettes.

Periodontal dressing was placed after recovery from general anesthesia. The postoperative recovery was uneventful and the patient was discharged from hospital 2 days after the procedure.

The histopathologic examination of the excised tissue showed increased fibroblast proliferation and elongation of rete pegs into lamina propria, commensurate with the diagnosis of fibrous gingival hyperplasia. (Fig.3)

Discussion:

Repeated injections, pain and unpleasant experience result in fear which may become difficult to overcome and make the patient unwilling or be unco-operative in the dental chair.

The choice of general anesthesia (GA) for this case was made as the patient had already undergone gingival excision several times since her childhood. These attempts had left fear and apprehension in her mind. Use of GA also curtailed the number of patient visits for completion of surgery.

Our patient was on Valproic acid since 18 months and was on Diphenyl hydantoin earlier. Gingival overgrowth is one of the most common side effects associated with administration of phenytoin, the most frequently used anti-epileptic drug. Gingival enlargement occurs in about 50% of the patients receiving Diphenyl hydantoin¹⁴, although different authors have reported incidences from 3% - 84.5%^{3,8,12}. The onset of symptoms with Diphenyl hydantoin use varies from 2 weeks to 3 months, with maximum severity at 12 to 18 months. The mechanism of hyperplasia may be related to a stimulation of fibroblast proliferation or to a presence of genetically determined phenytoin-sensitive subpopulations of fibroblasts⁷. There are reports of regression of hyperplasia on stopping treatment with phenytoin.^{5,13}

But, gingival hyperplasia is a rare side effect of Sodium valproate therapy. There are only 3 cases which have been reported so far^{2,11,15}. However, in each of these cases the patients had never received Diphenyl hydantoin and the gingival hyperplasia regressed on stopping treatment with sodium valproate.

In the presented case, sodium valproate cannot be considered as the only cause for hyperplasia since the patient had been on Diphenyl hydantoin earlier and a similar history of gingival hyperplasia was noted even then.

There are anecdotal case reports of general anesthesia

having been used in periodontal practice. In each of these, the reason for using general anesthesia for the gingivectomy procedures was fear and unco-operative nature of the patients.^{1,4,9,10,16}

However, the use of GA is not without risks. The cases need to be meticulously selected, proper preoperative care given, and intensive close monitoring during and immediately after the procedure should be provided.

Patient selection is based on American Society of Anesthesiologists (ASA) Physical Status Classification where age of the patient, nature of surgical procedure, treatment site and required anesthetic procedure are the influencing variables.⁴ (Table I).

Patients of ASA class I or II will be able to tolerate any surgical or anesthetic procedure. ASA class III patient requires the most critical decision making. A patient determined to an ASA IV classification should undergo only brief emergent or necessary palliative dental treatment.

Since use of general anesthesia in periodontal procedures is not very common, it is necessary to recall the pre-requisites for it.

A clear, concise, understandable preoperative patient communication is fundamental to ensure a smooth transition from the preoperative phase through recovery. The patient must have a complete understanding of the planned anesthesia protocols and what is expected of him/her both preoperatively and postoperatively. A signed informed consent in an understandable language having the details of the procedure, the risks involved including that of anesthesia and the alternative treatment options must be obtained. In a situation where the patient is mentally challenged, the parent/ guardian needs to be explained the details of the procedure and the informed consent to be signed by him/her.

Preoperative workup involves the assessment of cardiovascular, renal, liver and coagulation system disorders. For an elective surgery obvious infections should be treated beforehand.

Preoperative fasting is advised for atleast 4 hours prior to the procedure. This is done to reduce the volume of gastric contents and thus reducing the risk of aspiration pneumonia.

Premedications include administering sedative (benzodiazepines) the night before surgery to reduce preoperative anxiety; vagolytics (atropine) to block unwanted autonomic effects and to prevent excessive secretions, given usually before shifting for surgery.

Postoperatively, clear fluids should be given after 3-4 hours of the procedure. Patient should be checked for bleeding or extraoral swelling. Analgesics are prescribed to alleviate pain and antibiotics to prevent infection.

It is emphasized that general anesthesia remains an option for periodontal procedures like gingivectomy when surgery is likely to be prolonged or requires carrying out in multiple stages because of the extensive gingival growth and more so when patient is apprehensive or less cooperative. It is necessary for the periodontist to be aware of the preoperative considerations and postoperative care to be provided for such procedures.

References:

- 1) Ambalavanan N, Vanaja, Arunmozhi U: Hospital Periodontal Surgery. Indian J Dent Res. Jul-Sep;16(3):122-5: 2005
- 2) Anderson HH, Rapley JW, William DR. Gingival overgrowth with Valproic acid: a case report. ASDC J Dent Child. Jul- Aug; 64(4): 294- 7: 1997
- 3) Angelopoulos AP, Goaz PW: Incidence of diphenyl hydantoin gingival hyperplasia. Oral Surg ; 10: 219: 1972
- 4) Baptista IP : Hereditary gingival fibromatosis: A case report, J Clin Periodontol, 29: 871 – 874: 2002
- 5) Dahlhof G, AxioE, Modier T: Regression of phenytoin induced gingival overgrowth after withdrawal of medication. Swed Dent J, 15 (3) : 139 –43: 1991
- 6) Edward Morgan Jr, Maged S Mikhail, Michael J Murray. Clinical Anesthesiology. 3rd edition. Pg 8
- 7) Fitchie JG, Cormer RW, Hanes PJ, Reeves GW. The reduction of phenytoin – induced gingival overgrowth in a severely disabled patient: A case report. The Compendium of Continuing Education in Dentistry 1989; 10 (6): 317 - 320
- 8) Glickman I, Lewitus M: hyperplasia of the gingiva associated with Dilantin (sodium diphenyl hydantoinate) therapy. J Am Dent Assoc 1941; 28: 1991
- 9) Indu Sekhar : Idiopathic gingival fibromatosis. Saudi Dental J. Vol 14, No 3. Sept Dec: 2002
- 10) Ismail Marakoglu, Ulvi Kahraman Gursoy, Hulya Cakmak and Kamile Marakoglu: Phenytoin induced gingival overgrowth in un-cooperated Epilepsy Patients. Younsie Medical Journal. Vol 45, No 2, pp 337 – 340: 2004
- 11) M Behari. Gingival hyperplasia due to sodium valproate. J neurology, Neurosurgery and Psychiatry 54: 279 – 280: 1991
- 12) Pansuka HJ, Gorlin RJ, Bearman JE, et al: The effect of anti-convulsant drugs upon the gingiva. A series of 1048 patients II. J Periodontol; 32:15: 1961
- 13) Rams TE, Keyes PH: Regression of gingival hyperplasia after cessation of phenytoin drug therapy – a case report. Quintessence Int Dent Dig. May; 15 (5) : 539 – 44: 1984
- 14) Seymour KA, Thomason JM, Ellis TS: Pathogenesis of drug- induced gingival overgrowth. J Clin Periodontol 23: 165: 1996
- 15) Syrjanen IM, Syrjanen KJ. Hyperplastic gingivitis in a child receiving sodium valproate treatment. Proc Finn Dent Soc. (75) 95-98: 1979
- 16) Tavargeti AK, Kulkarni SS, Sudha P, Basavaprabhu: Idiopathic gingival fibromatosis – A case report. J Indian Soc Pedo Prev Dent. December 22 (4) (180 – 182: 2004

Table I: The American Society of Anesthesiologists (ASA) Physical Status Classification

ASA	HEALTH STATUS
I	A normal healthy patient
II	A patient with mild systemic disease and no functional limitations. (well controlled sick patient)
III	A patient with moderate to severe systemic disease that results in definite functional limitation (poorly controlled sick patient)
IV	A patient with severe systemic disease that is a constant threat to life and functionally incapacitating.
V	A morbid patient who is not expected to survive 24 hours with or without surgery
VI	A brain dead patient whose organs are being harvested
E	If the procedure is an emergency, the physical status is followed by "E" (for example, 2E)



Fig. 1: Ffibrotic enlargement of gingiva



Fig.2: Orthopentamogram showing impacted 3rd molars and erupting 2nd molars

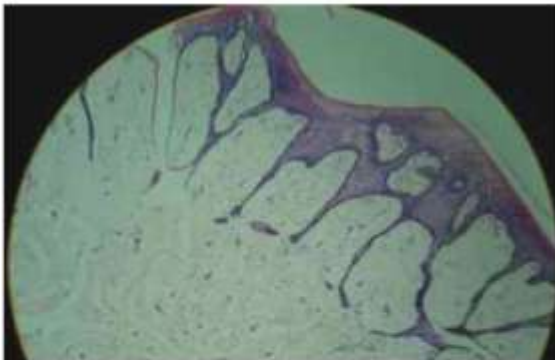


Fig.3: Microphotograph of excised gingival growth



Fig 4: Post operative

