Nasal Polyp in Children with Allergic Rhinitis: A Case Report

Teuku Husni[1,2]
[1]Doctoral Program in Mathematics Science Application, Syiah Kuala University, Banda Aceh, Indonesia
[2]Division of Rhinology, Department of Ear, Nose, Throat, Head & Neck Surgery, Faculty of Medicine, Zainoel Abidin General Hospital, Banda Aceh, Indonesia

Keywords: Nasal Polyp In Chidren, Rare Case, Allergic Rhinitis, Endoscopic Sinus Surgery, Polypectomy

Abstract: Nasal polyp are soft, painless, non cancerous growths, semi-translucent edematous masses with a broad or slim base usually arising from the mucosal lining of paranasal sinuses or on the lining of nasal passages. In most cases, polyps are considered to be manifestation of chronic inflammation due to asthma, recurring infection, allergies, drug sensitivity or certain immune disorders. Nasal polyp are very rare in children, the incidence is 0.1% of all nasal polyp case. Thirty three percent of all nasal polyp case in children are antrochoanal type. Multiple polyp can occur in children with chronic sinusitis, allergic rhinitis, cystic fibrosis or allergic fungal sinusitis. Medication like steroid can often shrink or eliminate nasal polyps, but surgery is sometimes needed to remove them. Even after successful treatment, nasal polyp often return. In this case report we present a 5 years old boy with nasal polyp sinistra with allergic rhinitis and necessitating endoscopic surgical intervention.

1 INTRODUCTION

Nasal polyp is a soft mass containing alot of fluid in nasal cavity, white greyish in color, due to mucous inflammation. Nasal polyp can occur in male and female, from young age to elderly person. If nasal polyp occur in children below 2 years, need to rule out possibilty of meningocel or meningoencephalocele. (Soepardi, 2012).

Nasal polyp mostly associated with chronic inflammation, otonom nerve dysfunction, and genetic disproportion. According to Bernstein theory, change in nasal mucous due to inflammation or airflow turbulence, mostly in narrow area in osteomeatal complex. Submucousal prolaps occur that followed by re-epitelization dan new gland formation. Also increasing natrium absorbtion by ephitel surface that cause water retention and create nasal polyp. Another theory confirm due to imbalance vasomotor nerve, increase capiler permeability and vascular regulation that cause releasing cytokin from mast cell, and cause edema and in long time will cause nasal polyp. (Soepardi, 2012).

Mackay dividing nasal polyp into 4 stadium: (Budiman, 2010)

- Stadium 0 : no nasal polyp
- Stadium 1 : polyp only in meatus media,not in nasal cavity, can't be seen by anterior rhinoscopy but can be seen by nasoendoscopy
- Stadium 2 : polyp out of meatus media and seen in nasal cavity, but not fullfil the nasal cavity
- Stadium 3 : nasal polyp fullfil the nasal cavity

Hellquist dividing nasal polyp based on the histologic type: (Budiman, 2010)

- Type I : Allergic polyp with dominant eosinophilic
- Type II : Fibroinflamatoric polyp with neutrofil dominant
- Type III : Polyp with hyperplasia seromusinosa gland
- Type IV : Polyp with atipical stroma

Chmielik dividing polyp based on hystologic into 3 type: eosinophilic polyp, inflammatory polyp, and atipical stroma. (Chmielik, 2011)

Clinical manifestations of nasal polyp depend on their extent and may consist of obstructed nasal breathing, hyposmia or anosmia (due to obstruction of the olfactory groove), headache (due to impaired

Husni, T.
Nasal Polyp in Children with Allergic Rhinitis: A Case Report.
DOI: 10.5220/0008792302280232
In *Proceedings of the 2nd Syiah Kuala International Conference on Medicine and Health Sciences (SKIC-MHS 2018)*, pages 228-232
ISBN: 978-989-758-438-1

ventilation and draination in the paranasal sinuses), snoring, *rhinophonia clausa*, and frequent throat clearing due to associated postnasal drainage. Spread to the lower airways can lead to laryngitis with hoarseness and bronchitic symptoms. (Probst, 2006).

Masive nasal polyp can cause nose deformity and widening of nasal bridge. On anterior rhinoscopy nasal polyp seen as a pale mass that came out from meatus medius and mobile. (Soepardi, 2012).

Paranasal sinuses radiologic (waters, AP, caldwell and lateral view) show mucous thickening and air fluid level in sinus, but less helpful in polyp case. CT scan investigation very helpful to see nasal cavity and sinuses clearly if there any inflammation process, anatomy abnormality, polyp or obstruction in osteomeatal complex. CT scan mostly indicated for nasal polyp case that fail to be treated with medication, for sinusitis complication dan planning for endoscopic surgery. (Soepardi, 2012).

Main purpose for nasal polyp treatment is to heal the complain, avoid the complication dan avoid the polyp recurrent. Corticosteroid treatment for nasal polyp called medication polypectomy. Can be given as topical or sistemic. Eosinophilic polyp give better response with intransal corticosteroid compare with neutrophilic polyp. For nasal polyp that not improve with medication or for masive nasal polyp, surgery is suggested. The surgery can be done by polyp extraction (polypectomy) with polyp wire or forcep with local anagesic, intranasal ethmoidectomy or extranasal ethmoidectomy for ethmoid polyp, Caldwell-luc surgery for maxillary sinus. If endoscopi facility avaialable, then the best option is to do Functional Endoscopic Sinus Surgery (FESS). (Probst, 2006).

2 CASE REPORT

A 5 years old boy came to ENT clinic of Zainoel Abidin General Hospital (ZAGH) on end of April 2018 referral from district ENT specialist with major complaint obstruction of left nose since 2 years ago and getting worse in the last 3 months. Patient complaining permanent obstruction, and only on the left nose. There's a history of nasal bleeding twice. Currently patient complaining pain on the left nose. Patient has an dust allergic and history of recurrent runny nose.

On physical examination, patient in good condition, fully alert, cooperative, and well nutrition status. On Ear examination, within normal limit. On nasal examination, looked asymetric due to mass compression on left nose. On left nares seen white gelatinous mass. On anterior rhinoscopy seen left nasal cavity fullfil with white gelatinous mass, inferior concha can't be seen due to mass. Right nasal cavity narrowing due to inferior concha hypertrophy, pale mucous, no rhinorea and septal deviation found. On oropharingeal examination within normal limit and found caries dentis. Normal neck examination. Patient diagnosed with left nasal polyp with allergic rhinitis. Then we conduct some examination such as laboratory, paranasal sinused CT scan without contrast dan chest x-ray. After all the examination result available, we refer patient to pediatric and anesthesia department to obtain the surgery approval for polypectomy under general anesthesia. The surgery plan to be done on 22 May 2018.

Figure 1: First picture of patient before the surgery

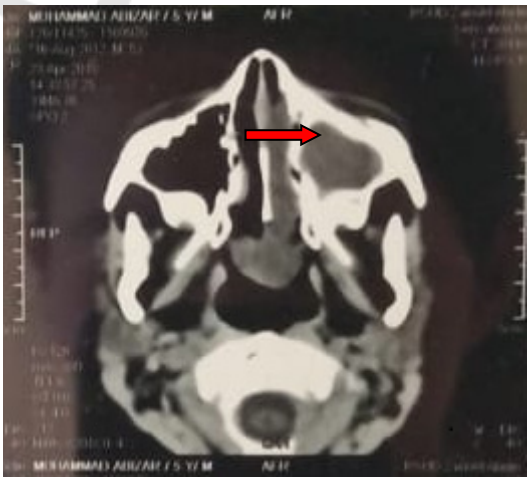

Figure 2: Paranasal sinus CT scan axial view showed polyp mass on left nasal cavity

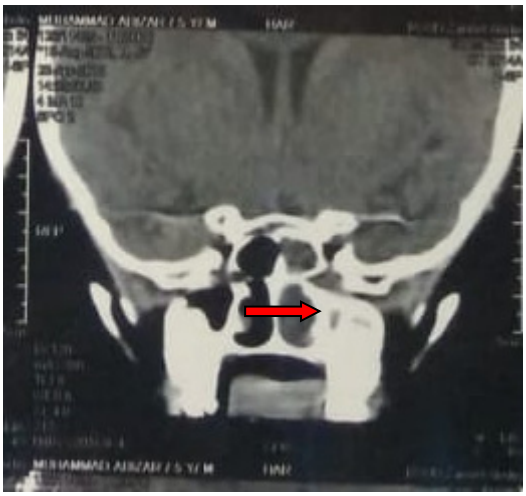

Figure 3: Paranasal sinus CT scan coronal view showed polyp mass on left nasal cavity

On 22 May 2018, the polypectomy endoscopic surgery done within general anesthesia. The surgery start with patient lay on the surgery table under general anesthesia. Pack was placed in the mouth. Aseptic and antiseptic procedure was done on the surgery field. Then xylocain adrenalin package was placed on both nasal cavity for 15-20 minutes. After the nasal packages removed, the left nasal cavity was observed with 0^0 scope, white greyish gelatinous mass seen fullfil the left nasal cavity dan seen redness on the posterior side, mobile, and seem came out from meatus media, inferior and media nasal concha eutrophy, meatus media blocked by the polyp mass. Extirpation nasal polyp was done by cutting forcep until all the nasal polyp in left nasal cavity was removed. And then nasal cavity was evaluated until nasopharyng area. No active bleeding found and nasopharyng area seem clear. Right nasal cavity also evaluated with 0^0 scope, no mass seen, inferior and media nasal concha eutrophy, nasopharyng within normal limit. Bleeding on left nose was controlled with handscoon nasal package. Pack in the mouth was removed. Surgery has finished. Polyp tissue was sent to anatomic pathology laboratory to find out what type of nasal polyp. Patient was returned to ward after fully alert. Post surgery treatment patient was given cefotaxime injection 500mg twice a day, paracetamol 250mg twice a day dan tranexamic acid 250mg thrice a day.

On the first post operation day, patient still complaining pain on the surgery site, but no more active bleeding found on the left nose. Anterior nasal package was still applied, no blood seepage seen, no blood seen on pharyngeal area.

On second post operation day, pain on the surgery site has reduced. Anterior nasal package was removed, and then left nasal cavity was evaluated. No active bleeding, sinechia, or nasal polyp found. Patient was allowed to discharge with some medication, cefixime syrup 60mg twice a day and paracetamol syrup 250mg thrice a day and edvised to do nasal wash at home.

Patient came for follow up review on ENT clinic ZAGH on the 6^{th} post operation day. Patient complaining blockage on left nose and stated that the nose washing has been done as instructed, 6 times a day. On physical examination found bloody crustae on left nasal cavity, no sinechia found. And then bloody crustae was extracted followed by nasal washing until left nasal clear.

Figure 4: First follow up review post surgery, no more mass seen on left nasal cavity

Next follow up review was done once every 2 days. Nasal blockage complaint has reduced. on anterior rhinoscopy blood crusta was found less than before. Patient has come for post operation follow up review 4 times,and then stopped due to ramadhan and idul fitri holiday. Patient's family was advised to go to the hospital if there's any nasal bleeding or nasal blockage happen.

On 4^{th} weeks after surgery, patient's family informed that patient start to sneezing and have a runny nose again, also nasal blockage at night. We advised them to come to ENT clinic of ZAGH and continue the nose wash, but patient has not come yet to the ENT clinic.

The anatomy pathology from the polyp tissue result come as nasal polyp, no malignancies sign found.

3 DISCUSSION

A nasal polyp case on 5 years old boy reported and diagnosed by anamnesis, physical examination through anterior rhinoscopy and radiologic examination paranasal sinuses CT scan. Nasal polyp in this case report found in 5 years old boy. This appropriate with literature reported by Bestari Jaka Budiman stated that nasal polyp occur more in male than female, 2-4: 1, and rarely happen in children with evidence number 0,1%. In Indonesia, epidemiology study showed comparison between male and female is 2-3:1 with prevalence 0,2%-4,3%. Polyp of this patient is antrochoanal polyp, and according to literature defined antrochoanal polyp is nasal polyp of maxillary nasal origin, came out through maxillary sinus ostium to nasal cavity and extend to choana. Accroding to Khalid, antrochoanal polyp is polyp that growth from maxillary sinus mucous and came out through ostium to nasal cavity. (Budiman, 2010)

The exact cause of antrochoanal polyp is not known yet, but can caused by allergic facto, cystic fibrosis infection and mechanical obstruction. In this patient also found allergic rhinitis that can cause nasal polyp. To find the type of allergen, patient should perform the allergic test so patient can avoid the allergen to decrease the recurrence rate. (Budiman, 2010)

Surgery was the only feasible treatment for antrochoanal polyp. Several surgical techniques were described. In the past, Caldwell-Luc technique was used. FESS is currently the glod standard techniques. FESS is less invasive techniques which permits to restrore drainage of the paranasal sinuses and ventilation between the nose and sinus cavities and allows shorter hopsital stay. The antral portion of an antrochoanal should be removed, together with the base of its origin, to minimize post-operative recurrence. The use of micro-debrider may be indicated, as complementary to endocsopic surgery. Combining endoscopic surgery and trans-canine sinuscopy is an alternative technique. The succes rate was 76,9% in the trans-nasal endoscopic approach. On the other hand, no recurrence could happen after long-term follow up if there's a correction of a nasal associated nasal anatomic variation at the time of surgery for antrochoanal polyp removal. (Chlebna, 2017; Mandour, 2017)

Recurrence rate of nasal polyp after endoscopi surgery was about 60%.[1] we have informed about this to patient's family before the surgery since the recurrency rate was quite high, followed by some advised to have a review at ENT clinic if there's any nasal blockage found. (Budiman, 2010)

The process of polyp formation due to chronic inflammation is reversible, so the treatment of rhinosinusitis should start very early with nasal washing with saline solution, antibiotic and local steroid. In the post-operative period the patient hs been recommended to keep on doing frequent nasal washing with saline solution. (Chlebna, 2017).

4 CONCLUSION

We described a case report of a 5 years old boy with rhinitis allergic presenting with nasal polyp. Diagnosed was made based on anamnesis, physical examination and radiology (CT scan) finding. The treatment was done by polypectomy surgery with FESS technique. Since the recurrence rate quite high, patient's family has been advised to control the rhinitis allergic symptom and seek for medical treatment if there's any nasal blockage reported by patient.

ACKNOWLEDGEMENTS

This paper reports a rare case in children hopefully can be additional information and knowledge in the field Ear Nose Throat Head and Neck Surgery.

REFERENCES

Aliyu I, Helen AO. (2013). "Multiple Nasal Polyps in an 11 Year Old Asthmatic Child: A Case Report", available from www.sjmms.net. Cited on 23 May 2018

Budiman, BJ, Sari AM. (2010). "Polip Nasi Pada Anak", Bagian THT-KL. FK Universitas Andalas. Padang.

Chlebna MO, Trzcinski K, Stelmach I. (2017). "Massive Nasal Polyposis in a patient with newly Diagnosed Cystic Fibrosis", adv respiratory medicine; 85:121-123. Available from www.journals.viamedica.pl cited on July 2018-07-23

Chmielik LP, Ryczer T, Chmielik M. (2011). "The clinical Analysis of Antrochoanal Polyps In Children", Available from www.newmedicine.pl/wp-content/uploads. cited on 23 May 2018.

Mandour ZM. (2017). "Antrochoanal Polyp in Pediatric Age Group", Egyptian Journal of Ear, Nose, Throat and Allied Sciences 18 ;17-21. Available from www.ejentas.com cited on July 2018

Mc Clay JE. (2017). “Nasal Polyps”, Available from: https://emedicine.medscape.com. cited on 23 May 2018

Probst R, Greves G, Iro H. (2006). “Basic Otorhinolaryngology, A Step by Step Learning guide”, Thieme. New York. p:57-58

Soepardi EA, Iskandar N, Bashiruddin J, Restuti RD. (2012).” Buku Ajar Ilmu Kesehatan THT-KL”, edisi ketujuh, Badan Penerbit FK-UI, Jakarta. Hal: 101-103