

CASE REPORT

Orbital Cellulitis with Unilateral Rhinosinusitis in Adult

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ABSTRACT

Background : Orbital cellulitis is one of complication from rhinosinusitis. Although the prevalence in adult is less common than in children, the morbidity is higher. An appropriate treatment for this case should be given to avoid morbidity.

Method : Serial cases of orbital cellulitis with unilateral sinusitis in Adult were reported in Dr.CiptoMangunkusumo Hospital. All cases occurred from December 2017-May 2018.

Result : There were 4 cases reported. Range 26-57 years old. All cases had eyelid swelling, two cases had limitation eye movement, and two cases had visual deterioration. Ethmoid sinus was the most common sinus affected. All cases were treated with broad-spectrum antibiotic and metronidazole. Orbital decompression was performed in two cases.

Conclusion: Appropriate treatments such as the use of systemic antibiotic and surgical is needed to decrease the morbidity.

Keywords : orbital cellulitis, Rhinosinusitis, Antibiotics and Surgical

Orbital cellulitis is an inflammation of soft tissue surrounding eye. Orbital cellulitis can be caused by acute rhinosinusitis. Acute rhinosinusitis is an inflammation of the paranasal sinus with duration of the disease less than 12 weeks. Acute bacterial rhinosinusitis is suspected if there are at least 3 symptoms; discoloured discharge, severe local pain, fever, elevated CRP and double sickening.

In this case, antibiotic recommended to give.¹ According to Chandlers orbital complication can be classified to preseptal cellulitis, orbital cellulitis, subperiosteal abscess, orbital abscess and thrombosis sinus cavernous.¹

The infection can be spread directly from the thin and often dehiscence of lamina papyracea. Systemic antibiotic and surgical drainage (if needed) are management of this case to avoid the sequelae.¹

METHODS

Serial cases were conducted within 6 months from December 2017- May 2018. All patients were from Otorhinolaryngology Department Dr.CiptoMangunkusumo hospital with chief complained swelling in orbital and rhinosinusitis symptoms. The inclusion

criteria were adult with unilateral sinusitis from physical examination and CT-scan.

RESULT

There were 4 cases. First case was man 30 years old, with chief complaint swelling on the eyelid and medial canthus area of the right eye. He did not have ophthalmoplegia, visual deterioration and eye movement limitation. Patient was administered levofloxacin and metronidazole intravenously. In 48 hours after given intravenous antibiotic there was mucopurulent discharge from medial cantus and the swelling had decreased minimally. From CT-scan there was inflammation on frontal sinus, ethmoid sinus and also lacrimal duct. Functional endoscopic sinus surgery was performed.

Second case was women 41 years old with eyelid swelling and ophthalmoplegia without visual problem. She had odontogenic sinusitis on right maxilla that spread to ethmoid. Patient had oral medication two days before admission from previous hospital and continued with ceftriaxon and metronidazole 2x24 hours intravenously. There was minimal improvement. Functional endoscopic sinus surgery was performed.

Third case was 26 years old man with proptosis, pain, eye redness, visual loss and restricted eye movement to all direction on the right eye since one day before admission. He had history of nasal congested and rhinorrhea since 6 days ago. Patient was administered levofloxacin and metronidazole intravenous. From CT scan there was a suspicious subperiosteal abscess from the superior part of orbital. Functional endoscopic sinus surgery with orbital decompression was performed immediately.

Fourth case was man 57 years old with swelling on the right eye immediately after sinus surgery due to odontogenic sinusitis. Swelling was getting worse 5 days


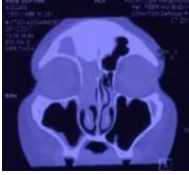






after surgery. There was restricted eye movement, visual disturbance and pain in right eye. We administered intravenous antibiotic 2x24 hours, and then performed CT scan. There were inflammations on maxillary sinus, ethmoid sinus and destruction on lamina papyracea. We performed revision functional endoscopic sinus surgery, external approach from inferior orbital and tooth extraction. Case description stated in table 1.

DISCUSSION

This paper reported 4 cases, with three cases of unilateral sinusitis with infection on similar site of the teeth problem. One patient had uncontrolled diabetic mellitus and history of sinus surgery. Every case had swelling on the eyelid. Two cases were classified to preseptal cellulitis, because the inflammation only in anterior part of septum orbital. The other cases were orbital cellulitis (one case suspect with subperiosteal orbital abscess and the last case was an iatrogenic case with palpebral abscess.

All patient were underwent surgery but the time and type of surgery is different. First case with preseptal inflammation, surgery decision was after having systemic antibiotic 2x 24 hours. In this case there were minimal discharge from fistula at medial canthus of the right eye. The purposes of the surgery were to eradicate the focal infection from sinus and also debridement from the fistula. Debridement performed to avoid cicatrix or healing problem that will make lacrimal obstruction and prevent progression of infection. One literature stated that the lacrimal sac infection could present as a preseptalcellulitis that was respond with systemic antibiotic. Some condition orbital abscess could occur in medial and inferior of the globe due to infection of anterior inferior the lacrimal sac.² Second case also preseptal inflammation.

Table 1. Case Description

No.	Age/ sex	Sign and symptoms	CT scan, Sinus involved	Type of complication	Surgery	Antibiotic	Outcome
1	30/M	Swelling on eyelid, pain (-), visual acuity 6/6, no restriction of eye movement. Purulent discharge at medial eyes.	Condensated at frontal and ethmoid sinus with involvement of nasolacrimal duct.	Preseptal with included nasolacrimal duct infection	Functional endoscopic sinus surgery, for drainage and debridement	Levofloxacin, metronidazole	Resolved without lacrimal duct obstruction,
							
2	41/F	Swelling on eyelid, pain (+), visual acuity 6/6, restriction of eye movement.	Condensated at ethmoid, maxilla, lamina papyracea intact.	Preseptal cellulitis	Functional endoscopic sinus surgery, for drainage and debridement	Ceftriaxon metronidazole	Resolved
							
3	26/M	Pain(+), decreasing visual acuity became no light perception, restriction of eye movement on all direction, exophthalmos.	Condensated at frontal and ethmoid sinus, with suppression from inflammation in superior part of the orbital.	Subperiosteal abscess	Functional endoscopic sinus surgery, With orbital decompression by incise the lamina papyracea	Levofloxacin, metronidazole	Resolved, but with visual acuity no light perception
							
4	57/M	Swelling on eyelid, Pain(+), decreasing visual acuity became 6/30, restriction of eye movement on all direction.	Condensated at ethmoid and maxilla, with destruction on lamina papyracea in medial inferior	Abscess palpebra	Revision functional endoscopic sinus surgery.	Levofloxacin, metronidazole	Resolved, but with strabismus (restriction of eye movement to the medial)
							

Surgery performed after patient had 2x24 hours oral antibiotic from previous hospital, then continue with 2x 24 hours intravenous antibiotic in our hospital with minimal improvement. Functional endoscopic sinus surgery performed to eradicate the focal infections.³

Third case was subperiosteal orbital abscess at superior part of the eyeball. In this case surgery was performed immediately within 24 hour in emergency operating theatre. Unfortunately patient already blind with visual acuity no light perception one day prior to admission. We performed functional endoscopic sinus surgery and also orbital decompression by making incision at lamina papyracea to evacuate discharge from orbital. After surgery was done the pressure of intraocular decrease and comes within normal limit, no proptosis and minimal swelling at palpebra. But unfortunately, his visual acuity remained at no light perception. The possible cause of this permanent visual loss is optic nerve compression or infiltration more than 24 hours. Surgical management in this case was done to avoid the mortality due to progress of the infection to the intracranial. The last case is an iatrogenic, post traumatic lamina papyracea, which happened on the surgical procedure at previous hospital. From the CT-scan after got 2x24 hours systemic antibiotic, we found that there were destruction on lamina papyracea, with narrowing maxillary ostium because it was covered by tissue from superior ostium and also the patient had septum deviation at middle meatal level which narrowing the drainage of the sinus.

In this case we performed functional endoscopic sinus surgery, widening the maxillary sinus, evaluate any destruction of lamina papyracea, correction of the septum, extraction teeth that was suspected as a main focal infection and external incision to drainage the pus. In this case patient had diabetic mellitus, therefore controlling the blood glucose also needed to get a better result and promote a better wound healing. After surgery the abscess and the

inflammation were getting better, and patient had improvement of eyes movement but with remaining medial movement limitation. This limitation can be caused by accidentally medial rectus muscle trauma on the previous surgery. Strabismus evaluation planned after infection resolved. All cases got combined antibiotic broad spectrum that can cover gram negative and anaerob organism such as metronidazole, because mostly unilateral sinusitis cases were odontogenic case, which need an antibiotic to treat the anaerob bacteria. One literature stated that 41% maxillary sinusitis was odontogenic case. Holistic management was needed, sometimes removal dental infection alone without sinus management was not sufficient.^{4,5.}

Based on the literature, the decision for surgical procedure for orbital cellulitis from acute rhinosinusitis in adult was determine by CT-scan evaluation, decrease of visual sign, failed to performed conservative treatment (some cases within 24 hours or 48 hours), scoring sign and symptoms.^{6,7} One literature had modified Stamberger classification as an indication to perform surgery. Stage I (blepharedema), stage II (Periostitis), stage III (Subperiosteal abscess), and stage IV (Orbital cellulitis). Diplopia, exophthalmia and reduce visual acuity were seen in stage III and IV. Conservative treatments were preferable for stage I and II. Surgery was needed for stages III and IV, or stages I and II that fails from conservatives treatment within 24- 48 hours.³ Other literature made a guideline using an evidence based staging system. Stage I (Orbital cellulitis, no abscess), Stage II (Subperiosteal abscess, consist of small if volume <1.25cm³, large if volume > 1.25cm³ or extensive), Stage III (Orbital abscess, peripheral or central). Stage I requires intravenous and/or oral antibiotics. Stage II with small abscess requires intravenous antibiotics. Stage II with large abscess prefers to perform endoscopic surgery. Stage II with extensive abscess prefers to perform combined approach. Stage III prefers to perform open approach surgery.⁸

Scoring system to evaluate clinical findings is necessary to determine surgical procedure timing. Further study with longer duration of study is needed as a guideline to determine scoring system. As conclusion of this study, antibiotic is the first line of therapy for orbital cellulitis as the complication of rhinosinusitis. The severity grade of eye involvement is one of the sign to determine surgical procedure timing. Surgical procedure with a good timing can improve the inflammation and prevent visual loss.

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