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Short Running Title: Clinical Dilemma of Popping Eye

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CASE REPORT

36 year old male presented in emergency department with worsening left eye protrusion since 2 and ½ years [Figure 1]. He also complained of left eye dull pain (3/10) and headaches for 2 weeks without any visual changes. No symptoms suggestive of thyroid disease. He had no significant past medical history. His Visual field and rest of the physical examination was normal. Patient's BP was elevated (171/112 mmHg) in the ED but came down to normal eventually. On CT scan of the head [Figure 2a], he had a large soft tissue homogenous mass extending into the left orbit measuring 5 x 3.8cm in axial dimension. Patient had endoscopic sinus surgery and resection of the left ethmoid mucocele and orbital decompression that he tolerated well with improvement of his proptosis [Figure 2b]. Post operatively patient complained of diplopia, which resolved eventually.

DISCUSSION

Para-nasal sinus mucocele is described as slowly expanding benign cystic lesion. Frontal and ethmoidal sinuses are being the most commonly affected with the condition. Most of the time it is filled with mucus and respiratory epithelium. The exact mechanism causing mucocele is unclear however obstruction of ostia due to inflammation, fibrosis, trauma, anatomical anomaly or polyps may be the cause [1, 2]. It may occur at any time but most commonly prevalent in 30 to 70 years of age irrespective of gender. If left untreated gradually it expands and may push surrounding structures especially bony walls of affected sinus, occasionally affecting orbit and intracranial cavity. Usually when it is small it is asymptomatic. As it expands it can cause headaches, facial asymmetry, orbital pain, and vision problem depending on the site of expansion. In our case the cause for mucocele was unclear and patient had headaches with left eye pain without any vision problem. When mucocele expands in orbital cavity pushing the structures behind the eyeball it can cause proptosis. There can also be visual acuity problem if the optic nerve is compressed.
CT scan is the confirmatory diagnostic test showing low density, soft tissue homogenous mass. MRI can be useful to differentiate the cause especially if it is neoplasm. If mucocele is infected it can rapidly expand and compress surrounding structures. Culture of the aspiration can confirm infection [3]. Treatment always consists of surgery, which can be external approach or endoscopic depending upon size and location of mucocele. In recent years endoscopic approach has been widely used due to its advantage of minimal damage to mucosa and maintenance of a patent sphenoethmoidal recess [4].

**CONCLUSION**

- Most common cause of proptosis: Thyroid disease - History is important to identify other causes
- Mucocele is relatively rare to develop up to this stage where it gives proptosis.
  The situation could have been prevented if there was early intervention.

**Key words:** Popping eye, unilateral proptosis, mucocele, diplopia

**CONFLICT OF INTEREST**

The authors certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers’ bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

**AUTHOR’S CONTRIBUTIONS**

Parag H Mehta, MD
- Group 1 - Conception and design,
- Group 2 - Critical revision of the article
- Group 3 - Final approval of the version to be published
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Group 1 - Acquisition of data/images, interpretation images
Group 2 - Drafting the article,
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Group 1 - Conception and design, interpretation images
Group 2 - Drafting the article, Critical revision of the article
Group 3 - Final approval of the version to be published

REFERENCES

Suggested Reading:
1. Paranasal sinus mucocele : https://radiopaedia.org/articles/paranasal-sinus-mucocele
ABBREVIATIONS

BP = blood pressure, ED = Emergency Department

FIGURE LEGENDS

Figure 1: Patient Photo showing popping of left eye.

Figure 2: (A) - Pre-Surgery CT scan of head: showing large mucocele evading left eye socket pushing eye ball out (B) - Post-Surgery CT scan of head: showing mucocele removed via endoscopic sinus surgery

FIGURES

Figure 1: Patient Photo showing popping of left eye.
Figure 2: (A) - Pre-Surgery CT scan of head: showing large mucocele evading left eye socket pushing eye ball out (B) - Post-Surgery CT scan of head: showing mucocele removed via endoscopic sinus surgery