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### CASE REPORT

#### ANATOMICAL FACIAL CHANGES FOLLOWING TREATMENT FOR ANACIN INDUCED ANAPHYLACTIC REACTION: A CASE REPORT.

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### ABSTRACT

This is a case of a 26-year old female patient with adverse drug reaction secondary to Anacin ingestion due to gum pain from fish bone injury. About 30mins after ingesting the drug, the patient presented with excessive lacrimal gland secretion, facial swelling and reddish eye that later got swollen and occluded as at she was rushed to the hospital for emergency care. She was immediately attended to by the doctors and nurses on duty. Facial examination after treatment showed cessation of lacrimal gland secretion, improvement on the occluded eyes and reduction in facial swelling. During the episode, serialized facial anatomical changes were documented and the observations showed that the inflammatory changes on the face resolved faster on the right side than on the left; with the inflammatory changes on the left side lasting till the 3<sup>rd</sup> day. Although the mechanism for these observations remains to be fully understood, it however depicts a definite anatomical pattern.

**Keywords:** *Anacin, Anaphylaxis, Anatomical changes, Face.*

### INTRODUCTION

Facial swelling following drug induced anaphylaxis has been well documented (Marx, 2010; Drain and Volcheck, 2001). According to Tintinalli (2010), anaphylactic reactions or anaphylaxis is a severe, life-threatening, generalized or systemic hypersensitivity reaction which can also be described as a serious allergic reaction that is rapid in onset and may cause death. It can occur in response to almost any foreign substance (Boden and Wesley Burks, 2011) which can be venom from insect bites or stings, foods, and medication (Lee and Vadas, 2011; Worm, 2010). However, food remains the most common trigger for anaphylaxis in children and young adults, while medications and animal venoms are the more common triggers in older adults (Simons, 2010).

In recent times, suggestions are rife that Adverse Drug Reactions (ADR) should be seen by all as a very important aspect of medical management (Agbaje et al., 2008), since every drug is capable of producing unpleasant consequences (Rendell, 1990; Bateman et al., 1992). Despite the usefulness of ADR reporting, doctors appears to be unaware of the need to report cases of anaphylaxis (Eland et al., 1997; Christopher et al., 2001) and oftentimes, do not know what to report, how to report, or whom to report to (Backstrom et al., 1999; Bisson et al., 2003).

Anatomically, the face is the anterior aspect of the head from one ear to the other, and from the chin to the hairline or where it ought to be (Sinnatamby 2006). The distinctiveness of the face results primarily from the anatomical variation in shape as well as relative prominence of the features of the underlying facial bone, and it plays an important role in human communication, interactions and identity (Moore and Dalley, 2006).

Although Anacin has been widely used as a safe analgesic, the recent report by Momoh et al. (2012) implicating it in an anaphylactic reaction characterized by excessive lacrimal gland secretion, periorbital swelling and generalized facial oedema even at the recommended dosages, formed the basis of this paper; particularly the selective periodic facial changes suggesting anatomical 'intrapersonal' variations in anaphylactic reactions.

## CASE PRESENTATION

A 26-year old lady was referred to the hospital with an hour history of bilateral-periorbital swellings, reddish eyes, visual impairment, headache and pains, secondary to the ingestion of 300mg Anacin -a brand of acetylsalicylic acid.

A night earlier, she noticed injury on her gum consequent upon her attempt to chew a fish bone. In less than 24 hours, she complained of pains in her gum and physical examination revealed no sign of pathology. The patient subsequently visited a patent medicine store and was given Anacin (made in Nigeria by SKG-PHARMA Ltd) -a drug whose indications are headaches, neuralgia, colds, muscular pain and pain following tooth extraction. She took two tablets and about 25 – 30 minutes after ingestion of the drug, she noticed severe headache and pains in her eyes.

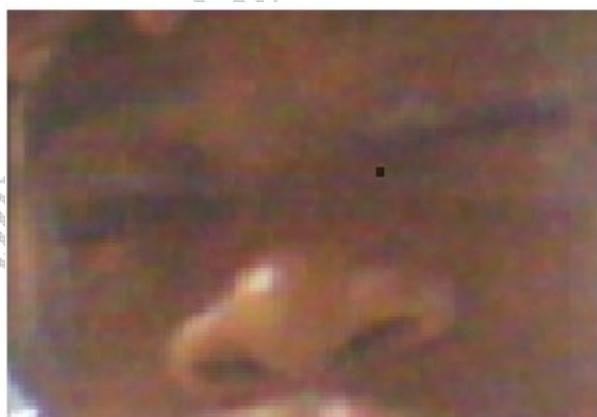


Figure 1: Patient's face on day 1 (30 minutes after anacin ingestion). See the occluded inflamed eyes.



Figure 2: Patient's eyes on day 1 (60 minutes after anacin ingestion). See the inflamed eyes external nose.

Ten (10) minutes later she noticed excessive lacrimal gland secretion from her eyes which were by this time reddish swollen and occluded. Also observed was a generalized facial swelling that included her cheeks, nose and lips. She was then rushed to a private clinic for emergency care by the doctor who made a diagnosis of an allergic drug reaction. She was managed with intravenous Hydrocortison (100mg daily for 3 days) and Gentacin (80mg start dose) as well as Gentacin eye drops (2 drops per eye three times daily for 3 days), paracetamol tablets and Vitamin C.

Astonished by the rapidity of onset of facial changes during the anaphylactic episode, serialized digital pictures of the patient's face were taken beginning from day one after onset of anaphylactic shock through clinical diagnosis, commencement of treatment, and during/after treatment (morning, afternoon and evening). Changes like redness of the face, increased lacrimal fluid secretion, generalized facial swelling and inflammatory occlusion of the eyes were particularly observed. Her condition showed marked improvement 35 minutes after the commencement of treatment. Interestingly, the facial swelling resolved in such a manner that depicted certain anatomical variations that remains to be fully understood.

Lacrimal gland secretion was more pronounced on day one when compared with day two and three. Inflammatory eye occlusions resolved faster on the right than that of the left. The observed facial swelling began to resolve on the right side of the face 35 minutes after the commencement of emergency treatment. The serialized observations showed also, that by the second day after treatment, the left eye remained slightly occluded unlike the right, and the facial swelling persisted till the 3<sup>rd</sup> day on the left side of the face unlike the right.



Figure 3: Patient's face on day 1 (90 minutes after anacin ingestion).



Figure 4: Patient's eyes on day 1 (30 minutes after emergency treatment).



Figure 5: Patient's face on day 2 (morning) showing total opening of the right. Compare same with the left.



Figure 6: Patients face on day 3 (morning) showing opening of the left eye. See persistent evidence of facial swelling.

## DISCUSSION

Anaphylaxis as reported by Oswalt and Kemp (2007) and Simons (2009) typically presents with different symptoms over minutes or hours with an average onset of 5 to 30 minutes, in which one of the symptoms is flushing or swelling of the lips (Sampson et al., 2006) and angioedema (Simons, 2010) as observed in this case. While people with atopic diseases such as asthma, eczema or allergic rhinitis are at high risk of anaphylaxis from food, latex, and radio contrast (Simons and Simons, 2010; Sampson et al., 2006), the patient in this case had no previous report of such diseases.

Except for accidents and congenital anomalies, the shape, size and contour of the face is symmetrical and with usually no noticeable changes from the left and right (Chris, 2011). Hence, the observed selective changes on the right side of the face, as compared to the left, is indeed an interesting biological phenomenon that raises several questions like: 1) why did the inflammatory changes on the right side of the face resolve before the left; 2) why did the inflammatory changes on the eyes resolve first before the cheeks; and 3) Is this pattern same for all individuals or does it obey the rules of human variability –age, sex, race, genotype, bilateralism, etc.

Nevertheless, the observed selective facial changes after treatment of the patient, undoubtedly supports the existence on facial variations amongst individuals (Liu et al., 2012; Abzhanov et al., 2006), which can be genetically and non-genetically determined (Abzhanov et al., 2006; Hubbe et al., 2009; Harvati and Weaver, 2006; Boehringer et al., 2011). According to Peng et al. (2013), the high heritability of facial features suggests that one's facial characters might be predicted to a certain extent, as long as the genetic determinants are identified and their effects fully understood.

It has also been suggested that face prediction based on genetic profiling, if feasible, may revolutionize forensics (Kayser and Schneider, 2009) and strongly benefit medical diagnosis (Hutton et al., 2013). There are convictions also, that the application of relevant skills in this regard, could enable the precise identification of rare genetic diseases and the syndrome effects of such diseases could be extracted, predicted and visualized in great detail (Hammond, 2007; Hammond et al., 2012; Hammond and Suttie (2012).

In fact, unlike the bilateral facial swelling pattern observed in this case, left-sided swellings during anaphylactic episodes have also been reported in association with several clinical conditions like hereditary angioedema (HAE) (Johnston, 2011) and dog-hair induced allergic reaction resulting in a left sided periorbital swelling and proptosis (Goodyear et al., 2004), as well as right sided swellings in air emphysema during root canal treatment of a right maxillary first molar (Hülsmann and Hahn, 2000). This indicates that anaphylactic episodes can be accompanied by either bilateral or unilateral (left-sided or right-sided) facial changes, which further depicts human differences.

Thus, further research is recommended in this regard to fully understand the basis and mechanisms involved, as well as the possible clinical applications of this new line of thought.

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#### **AUTHOR(S) CONTRIBUTION**

Significant contributions were made by all the authors of the article.