

Perioperative anaphylaxis - Have we seen it all?

To Editor,

Anaphylaxis is a potentially fatal complication with a wide spectrum of presentations, but neuropsychiatric symptoms have not been reported as manifestations of anaphylactic reactions. We present a case of anaphylaxis in the perioperative period, manifesting with only neuropsychiatric symptoms, without any significant cardiovascular or respiratory system involvement.

A 45-year-old, 80 kg patient, an operated case of fracture humerus, was scheduled to undergo percutaneous screw removal. All his preoperative investigations were within normal limits. Previous surgery was done 2 weeks earlier under brachial plexus block (BPB) given by the supraclavicular approach. Both surgery and anaesthesia had been uneventful. Patient was shifted to the operation theatre, midazolam (2 mg) was injected intravenously (IV) for premedication. Injection ceftriaxone 1 gm (after checking prior antibiotic sensitivity by intradermal skin testing, reported as negative) was added to the IV fluid. A supraclavicular BPB was given (bupivacaine + clonidine) after negative aspiration for blood. Within a few minutes of administering the local anaesthetic (LA), patient developed severe agitation and delirium and became very violent. In the next few minutes, patient developed rashes, urticaria and flushing over forearms and chest, spreading to the face and neck. All vitals remained stable with no other systemic manifestations. A differential diagnosis of LA systemic toxicity was made apart from anaphylaxis to antibiotic and possibly latex. Antibiotic infusion was stopped. Intralipid was kept ready but because of stable haemodynamics, its administration was withheld. In view of continuous severe agitation, restlessness, delirium and a possible diagnosis of anaphylaxis, patient's trachea was intubated. During laryngoscopy, oedema of the uvula was seen. There was still no cardiovascular collapse or bronchospasm; however, the flushing had spread to the abdomen and thighs. A provisional diagnosis of anaphylaxis (Grade I) was made and 0.5 mg of epinephrine was given intramuscularly. Inj. pheniramine maleate 45 mg and inj. hydrocortisone 200 mg was also administered IV. Ten minutes after administration of epinephrine all

cutaneous symptoms resolved. Since the patient's condition was stable, surgeons were asked to proceed and at the end of uneventful surgery, trachea was extubated. No neuropsychiatric manifestations were seen post-extubation. Patient was sent to the intensive care unit (ICU) for observation and then shifted to the ward next day. Serum tryptase levels done 6 hrs after the episode showed a level of 33.5 ng/ml. Repeat serum tryptase could not be done as the patient could not afford the test.

Common perioperative triggers of anaphylaxis include neuromuscular blocking agents, antibiotics, colloids and latex.^[1] Anaphylaxis to antibiotics administered during the perioperative period continue to increase with time and account for 15% of the cases.^[2] Although the incidence of anaphylaxis by ceftriaxone is rare, a few cases have been reported occurring in children^[3] and adults^[4-6] alike. It has also been reported that anaphylaxis can occur even with a negative intradermal test.^[6]

Anaphylaxis is essentially a clinical diagnosis that can be aided by a history of recent exposure to an offending agent. In our patient there was definite re-exposure. Patients may present with acute onset of generalized mucocutaneous signs, respiratory compromise and cardiovascular instability, in isolation or in any combination. Central nervous system symptoms occurring in anaphylaxis usually are anxiety/restlessness/feeling of impending doom or unconsciousness due to hypotension and hypoxia. To the best of our knowledge, there is yet no report of neuropsychiatric manifestations in anaphylaxis and the pathophysiology is not very clear. It can be hypothesised that in hypersensitivity states the neurological disorders are ischemic in origin, probably due to primary vascular insult, allergic oedema and disturbed neuronal biochemistry resulted by the immunological process.^[7] Ours is probably the first case reporting the same, as a predominant symptom. A differential diagnosis of systemic toxicity to LAs was considered, but the absence of cardiovascular features was the confounding factor. Neuropsychiatric manifestations have been reported with ceftriaxone, making it an important differential diagnosis. However, these are seen in the elderly, with impaired renal function and after the drug has been used repeatedly. A previous exposure, temporal association of onset of symptoms to administration of ceftriaxone, presence of cutaneous symptoms, response to adrenaline and a positive serum tryptase test confirm the diagnosis

of anaphylaxis in our patient. Through this case we wish to highlight that rarely anaphylaxis can manifest with neuropsychiatric symptoms alone, without any cardiovascular or respiratory system involvement. It is important for the anaesthesiologist to know this to make a correct diagnosis of a life-threatening condition.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Ranju Singh, Aruna Jain

Department of Anaesthesia, Lady Hardinge Medical College and Associated Hospitals, New Delhi, India

Address for correspondence:

Dr. Ranju Singh,
B-2/532, Ekta Gardens, I.P. Extension, Patparganj,
New Delhi - 110 092, India.
E-mail: ranjusingh1503@gmail.com

Submitted: 23-Apr-2020

Revised: 12-May-2020

Accepted: 12-Jun-2020

Published: 15-Aug-2020

REFERENCES

1. Gandhi R, Sharma B, Sood J, Sehgal R, Chugh P. Anaphylaxis during anaesthesia: Indian scenario. *Indian J Anaesth* 2017;61:387-92.
2. Dewachter P, Savic L. Perioperative anaphylaxis: Pathophysiology, clinical presentation and management. *Br J Anaesth* 2019;19:313-20.
3. Calapai G, Imbesi S, Ventura-Spagnolo E, Cafeo V, Milone L, Navarra M, *et al.* Fatal anaphylactic shock ceftriaxone-induced in a 4-year-old child. *Pediatr Emerg Care* 2016;32:32-3.
4. Aboul-Fotouha S, Magdya YM, Ali RM. A case report of asystole after a test dose of ceftriaxone in an adult man. *Ain-Shams J Anaesthesiol* 2016;9:617-9.
5. Kumari A, Gupta R, Bajwa SS, Jagdeep. A rare case of ceftriaxone induced anaphylaxis in anaesthesia practice. *Arch Med Health Sci* 2015;3:106-9.
6. Bhagwat AG, Saxena KN. Intraoperative anaphylaxis to inj. Ceftriaxone: Here we go again. *Ind J Anaesth* 2008;52:462-6.
7. Fazlullah S. Neurological complications in hypersensitivity. *Postgrad Med J* 1957;33:121-30.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/ija.IJA_438_20

How to cite this article: Singh R, Jain A. Perioperative anaphylaxis – Have we seen it all?. *Indian J Anaesth* 2020;64:209-10.

© 2020 Indian Journal of Anaesthesia | Published by Wolters Kluwer - Medknow