CASE REPORT

An Unusual Spectrum of Anaphylactoid Reaction to Vancomycin During General Anesthesia

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This case report describes an unusual spectrum of a proved anaphylactoid reaction to vancomycin during general anesthesia for release of tethered spinal cord in a 14 year old girl. Bronchospasm which is the sine qua non of a classical anaphylactoid reaction was singularly absent in this particular case. Our objective in this presentation is to highlight the importance of early recognition of this potentially fatal drug reaction which should be taken into consideration in the absence of bronchospasm if other clinical signs are subtle and unequivocal.

Keywords: Anaphylactoid reaction; Anesthesia; Bronchospasm; Vancomycin

Aside from patient history, there are no known characteristics that identify persons at risk for anaphylaxis [1]. The use of prophylactic antistaphlococcal antibiotics is being practiced by and large at many centers. Anaphylactoid responses may occur after the first exposure of a patient to a drug and the extent of the reaction is dose related, distinguishing these from anaphylactic reactions where prior sensitization is required and minimal quantities of a drug may set off severe responses [2].

We report a rather unusual case of an anaphylactoid reaction to vancomycin during anesthesia which remarkably lacked bronchospasm despite a full blown picture of an anaphylactoid reaction. To our knowledge, this is the first case report which developed a classical anaphylactoid reaction without the respiratory component of bronchospasm.

Case Description

A 14 year old girl was scheduled for laminectomy and repair of tethered cord. In the past, the patient had undergone three operations under general anesthesia for repair of a sacral meningocele which had been uneventful. Physical examination and routine laboratory data were unremarkable. The patient was paraplegic as confirmed by neurological examination conducted earlier. On arrival in the OR, a previously calibrated vital signs monitor and an ECG monitor were connected to the patient. After obtaining an intravenous line, she was administered diazepam 5 mg and fentanyl 100 microgram by the same route.

After a lapse of 4 minutes and while receiving oxygen via a face mask, she received thiopental sodium 200 mg followed by pancuronium 4 mg and endotracheal intubation accomplished thereafter. Anesthesia was maintained with nitrous oxide, oxygen, isoflurane and incremental doses of fentanyl. Vital signs remained stable and an infusion of vancomycin 1 g in 500 ml normal saline was started to be infused during an hour period while the patient was transferred over to the prone position.

Ten minutes after the patient had been placed in the prone position, and 20 minutes after the initiation of vancomycin hydrochloride infusion and before the initiation of surgical incision, an intense maculopapular rash was noticed over the face, upper extremities and the truncal region. The pulse was thready, barely perceptible and the blood pressure was unrecordable, but the lungs remained clear with no evidence of bronchospasm. The patient was quickly turned over to the supine position, the legs elevated and epinephrine 0.5mg, hydrocortisone 200 mg, cimetidine 150 mg, and chlorphenyramine maleate 4 mg injected intravenously in rapid succession. Meanwhile 2 liters of Ringer lactate solution was rapidly infused. The blood pressure showed a gradual rise till it reached 110/70 mmHg 15 minutes after initiation of emergency and resuscitative measures. The heart rate reached a figure of 98 beats per minute with no evidence of any arrhythmia. After having assessed that all the vital signs and other indices were within an acceptable range, the patient was transferred over to the prone position once again, and the operation conducted uneventfully. On the 5th postoperative

day, sensitivity tests were performed for thiopental, pancuronium and vancomycin. Vancomycin gave the only positive response after the sensitivity tests were analyzed.

Discussion

Literature seems abound with allergic reactions attributed to vancomycin [3-7] ever since the first anaphylactoid reaction to vancomycin got published by Rothenberg [8] convincing physicians worldwide to remain cautious while administering this highly valuable yet potentially lethal antibiotic.

Numerous prophylactic measures such as prophylactive intravenous administration of H1 and H2 antagonists [1],

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and utilizing alternative antibiotics if a history of classical red man syndrome after a previous vancomycin therapy is forthcoming [8] have been advocated. If a red man syndrome has occurred after previous vancomycin therapy, an alternative antibiotic should be advised [9] because a second exposure to vancomycin in such a scenario would cause grave repercussions. Others have warned against transcending the acceptable limits of administering 1g vancomycin in less than 1 hour [10]. Surprisingly an anaphylactoid reaction occurred in a middle aged woman even though vancomycin was administered over 1.5 hours and despite premedication with diphenhydramine [6]. In still another case, a fairly severe anaphylaxis to vancomycin developed although the patient was pretreated with diphenhydramine before vancomycin infusion was given [5]. These cases do sound an alarm that the entity of an alarming vancomycin - induced reaction could occur despite precautionary and preventive measures taken to prevent its occurrence.

Vancomycin-induced reactions are usually anaphylactoid in type. They do not require prior sensitization, and they are usually concentration related. Most patients will get symptoms if the drug is administered too rapidly (concentrations are too high), but the symptoms will disappear if the infusion rate is decreased. Anaphylactic reactions are found in just a few patients, they require prior exposure, and are not dose or concentration dependent.

There are reports about anaphylactoid reaction induced by vancomycin including linear IgA bullus dermatosis and red man syndrome through IgE.

Our case is a classic example of an anaphylactoid reaction following vancomycin administration. However, it stands unique because the lungs were clear during the episode and that bronchospasm which normally goes parallel with vancomycin induced anaphylactoid reaction was singularly nonexistent. It could perhaps be an another non-variant appearance of an anaphylactoid reaction, and it underscores the point that vancomycin induced anaphylactoid reaction may at times deviate a little bit from the classical description that appears for it in the literature.

Just as seizures have been reported following vancomycin [11], and for which no tentative reason has been forwarded, our case forwards this notion that just as positive findings help us in clinching the final diagnosis; negative findings should not make us jittery about our rightly conceived diagnosis of the case because a little delay could be perilous.

Our case was paraplegic and fairly thin. She did not have an intact sympathetic system to compensate for the histamine-related properties of vancomycin although she was given 1 gram of vancomycin in an hour period according to recommended guidelines. Perhaps it was still large enough for the patient's volume of distribution because otherwise the administration was not fast to have caused the anaphylactoid reaction.

It is difficult to catalogue with certainty the plethora of events leading to the anaphylactoid reaction but the absence of the pulmonary component of bronchospasm in this rare case scenario underscores it as the cardinal feature of this particular case. We believe that the absence of bronchospasm could perhaps be attributed to the inhalational agents employed in this particular case. The isoflurane employed in this particular case could well have prevented and inhibited the occurrence of acute bronchospasm in this case. However, it is just a hypothetical assumption and needs additional research to establish its tentative role in preventing or obviating bronchospasm following vancomycin induced anaphylactoid reaction as it happened in our case.

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