

Delayed hypersensitivity reaction after oral intake of non-ionic iodinated contrast medium

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Case report

A patient with dysphagia and a history of a colon interposition graft came to our department. We scheduled the patient for a fluoroscopy to find the reason for the dysphagia. There was no hint for a renal failure. Several decades ago, oral application of an ionic contrast medium (CM) was tolerated very well. We decided to apply a non-ionic CM, because we suspected erosions in addition to a stenosis. The patient received iopamidol (Iopamiro®) orally. No immediate adverse reactions occurred. At home, several hours later the patient acquired a generalized maculopapular exanthema.

The fluoroscopy showed both, a stenosis and a diverticulum in the proximal part of the esophagus. A surgical intervention was necessary. Therefore, one week later, again the patient came to our department for a contrast-enhanced computed tomography (CT) scan that should display a more detailed insight into the pathological situation. Before we intravenously injected the contrast medium, the patient told us that a delayed contrast medium reaction occurred one week ago. Therefore, the patient was at risk for the acquisition of another delayed adverse reaction. As prophylaxis, we performed the contrast-enhanced CT examination without any premedication, but we omitted the culprit CM iopamidol and injected another CM, namely iobitridol (Xenetix® 350). Subsequently, neither an immediate nor a non-immediate reaction occurred.

Discussion

Iodinated contrast medium intake via the gastrointestinal route is able to induce various immediate adverse reactions of different severity grades [1,2]. Delayed reactions following intravascular injection of the contrast agent are well known [3], and seem to occur more often than immediate reactions. Non-immediate allergic reactions following oral CM-applications are less common, and have been only once reported in the context of an ionic iodinated contrast materials (diatrizoate sodium solution, diatrizoate meglumine [Gastrografin®]) [4].

Although the American College of Radiology (ACR)-Guidelines mention allergy-like CM-reactions following the uptake via the gastro-intestinal-route [2], there are no recommendations or strategies to omit such reactions in patients at risk. We decided to apply a non-culprit iodinated non-ionic CM, as recommended for the intravascular CM application in other papers [5,6]. The herein presented patient tolerated the non-culprit agent very well.

The acquisition of contrast-induced acute kidney injury (CI-AKI) is another possible risk factor following the application of iodinated contrast media [7, 8, 9]. Although the presented case did not acquire CI-AKI, it is noteworthy that even in cases receiving oral CM application, CI-AKI may occur. As pointed out previously, its diagnosis has relied upon the rise in creatinine levels, which is a late marker of kidney damage and is believed to be inadequate [7].

Therefore, other biomarkers such as neutrophil gelatinase-associated lipocalin for example have been tested [for details see 7].

The presented case is of special interest because it is to the best of our knowledge the first case with a delayed reaction that occurred following the oral intake of a non-ionic iodinated contrast medium. Moreover, the patient acquired a non-immediate allergy upon the first application of a non-ionic CM in life. Currently, the reason for this phenomenon is unclear [5]. It is tempting to speculate that a contact to and a subsequent silent sensitization against iodinated contrast media in drinking water could be the reason [10].

Taken together, the presented case shows that even following the per-oral intake of a non-ionic iodinated CM, delayed hypersensitivity is possible. Moreover, although unusual for an allergy, reactions can manifest directly when the organism has the first contact to a contrast medium [5]. The omission of the culprit compound and the use of a non-culprit alternate instead is a useful and effective prophylaxis. Finally yet importantly, since this is the first case with a colon interposition graft to replace a defect of the esophagus, such conditions do not

seem to increase the risk for a contrast medium hypersensitivity reaction after per oral administration, because we did not find another case in the literature.

References

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