Anaphylactic reaction to intraurethral chlorhexidine: sensitisation following previous repeated uneventful administration

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ABSTRACT
Instillagel® (CliniMed, High Wycombe, UK) is commonly used in urethral catheterisation and to facilitate the passage of instruments into the bladder in urological practice. Its active ingredients include 0.25% chlorhexidine, 2% lidocaine, 0.06% methyl hydroxybenzoate and 0.025% propyl hydroxybenzoate. We discuss the case of an 84-year-old man who received intraurethral Instillagel® prior to laser ablation of a recurrent transitional cell carcinoma of the bladder, resulting in anaphylaxis. Subsequent investigation confirmed allergy to chlorhexidine. Although there are previous reports in the literature, this is the first report of intraurethral chlorhexidine resulting in anaphylaxis in a patient who had had repeated, uneventful previous exposures. As such, this case illustrates the phenomenon of chlorhexidine sensitisation and that previous uneventful exposures do not exclude the diagnosis of anaphylaxis in the context of sudden, unexpected deterioration.

KEYWORDS
Chlorhexidine – Instillagel® – Anaphylaxis – Allergy – Cystoscopy

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Case history
An 84-year-old man attended our day-case unit for laser ablation of a recurrent bladder tumour. Transitional cell carcinoma of the bladder had been diagnosed initially in 2009 and subsequent to his first transurethral resection of a bladder tumour, he had had one cystodiathermy under general anaesthesia, three surveillance cystoscopies under local anaesthesia and two laser ablations of recurrences under local anaesthesia via a flexible cystoscope.

Other noteworthy medical history included acute retention of urine with subsequent transurethral resection of the prostate in 2003 and a stroke several years ago, following which he made a full recovery. He reported no history of atopy or allergy. In our unit, intraurethral Instillagel® (CliniMed, High Wycombe, UK) has been used routinely throughout the duration of his follow-up and gentamicin had been given prior to all but two of his previous cystoscopic procedures.

The procedure was carried out in the standard manner with administration of 120mg intramuscular gentamicin, saline skin preparation and application of 11ml of intraurethral Instillagel®, followed by the passage of the cystoscope into the bladder. The recurrence was noted to be solitary, small and simply ablated with a laser. A latex catheter was sited to ease postoperative pain and was planned for removal prior to discharge.

While awaiting discharge, the patient developed a sudden and unexpected deterioration in his clinical state with hypoxia (oxygen saturation 95%), hypotension (blood pressure 55/32mmHg), tachycardia (130bpm), cerebral obtundation and widespread hyperaemia of the skin. Immediate resuscitation took the form of oxygen, intravenous (IV) fluid, 3mg IV metaraminol (3 increments), 10mg IV chlorphenamine and 100mg IV hydrocortisone, together with salbutamol nebulisers. Following these measures, his condition improved and stabilised (blood pressure 109/39mmHg, pulse 110bpm, oxygen saturation 98% and Glasgow coma scale 15/15). He was then admitted to our intensive care unit for a period of monitoring.

During this period, the patient’s serial mast cell tryptase levels at 4, 8 and 24 hours following deterioration were 11.6µg/l, 8.1µg/l and 2.9µg/l respectively (normal range 2–14µg/l). He was discharged home after 24 hours of observation.

Our patient subsequently underwent a series of challenge tests under the care of our allergy clinic against gentamicin, chlorhexidine, lidocaine and latex. This revealed a strongly positive response to 2% chlorhexidine skin preparation and an indeterminate reaction to gentamicin. There was no demonstrable reaction to either lidocaine or latex.

He is currently awaiting his next surveillance flexible cystoscopy and has been given a medic alert bracelet.
documenting ‘Chlorhexidine allergy – avoid gentamicin/aminoglycosides’. All subsequent procedures are now considered high risk and will be carried out in theatre with appropriate staff present.

Discussion

Although cases of anaphylactic and anaphylactoid reactions to the chlorhexidine component of Instillagel® have been documented previously, this case highlights both the necessity to recognise this collection of signs swiftly and that previous repeated exposure to intraurethral chlorhexidine with no evidence of allergy does not exclude the diagnosis. Reports in the literature appear to fall into two categories concerning urethral exposure to chlorhexidine. Those who are diagnosed for the first time with chlorhexidine associated anaphylaxis following intraurethral exposure tend to deteriorate some time (10–50 minutes) after administration, often in the recovery room or in the perioperative course after induction of anaesthesia.1,2 However, reports of immediate anaphylactic reaction and deterioration in patients following intraurethral chlorhexidine exposure also occur in those who have known hypersensitivity to chlorhexidine when Instillagel® has been administered in the absence of knowledge of its constituent ingredients.3,4

Conclusions

The potential for sensitisation to chlorhexidine among the inpatient population and patients in the community is large. Chlorhexidine is commonplace in skin-cleansing preparations used in hospitals and is almost ubiquitous in over-the-counter mouth care products. To this end, the rate of patients sensitised to chlorhexidine will remain unknown. An awareness of the diagnosis of chlorhexidine-associated anaphylaxis and the potential for sensitisation is of great importance, particularly because the majority of intraurethral exposures occur outside the operating theatre in the absence of immediately available anaesthetic care.

References

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