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Title
Propofol extravasation pain masked by lignocaine premedication

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- Letter to the Editor -

Propofol injection is associated with pain in approximately 60% of untreated cases [1]. The pain is usually sharp or burning in character and can be severe in intensity. Many pharmacological treatments have been shown to reduce pain on propofol injection [2]. Of these, premedication with lignocaine has the greatest evidence base and is the most frequently used. Here we report a case whereby the use of lignocaine premedication completely masked the pain associated with propofol extravasation in an awake patient, markedly delaying its diagnosis. Informed consent was obtained from the patient for this publication.

A 50-year-old lady (weight 116 kg, BMI 43 kg/m²) with known difficult venous access presented for surveillance gastroscopy and colonoscopy under sedation. After multiple failed attempts, a cannula was inserted into an antecubital fossa vein, through which fentanyl 50 µg and midazolam 1 mg were administered. 100 mg lignocaine in 10 ml was then slowly administered through the cannula before a target-controlled infusion of propofol (Provive® MCT-LCT 1%, Baxter Healthcare, Australia) was commenced. Despite injection of over 300 mg propofol within 2 minutes, the patient had no evidence of sedation. A presumptive diagnosis of propofol extravasation was made and the infusion was stopped. The patient did not report any discomfort and the antecubital fossa cannula site remained soft and non-tender on examination. A second cannula was inserted in the contralateral arm, and propofol TCI was recommenced with rapid clinical response. The remainder of the procedure and sedation were uneventful. The patient was monitored for two hours in the post-anesthesia recovery unit where mild erythema began to develop.
around the original antecubital fossa cannula site. The patient also reported developing pain on elbow flexion. Her arm remained soft, distal pulses were present, and she was deemed safe for discharge. On telephone follow-up the next day, the patient reported that erythema and pain in her arm have completely resolved.

There have been numerous reports of propofol extravasation in the literature with sequelae ranging from local erythema to tissue necrosis and compartment syndrome [3-5]. In all published cases, propofol extravasation involved patients who were unable to voice pain (anesthetized, sedated or neonate). Missed extravasation of large volumes of propofol in an awake patient is rare as extravasation pain is usually severe which leads to early detection and cessation of administration.

In the present case, recognition of propofol extravasation was significantly delayed due to the absence of patient discomfort. Extravasation was only suspected after a relatively large volume (30 ml) of propofol had been administered without any observable pharmacodynamic response. The absence of extravasation pain in this case was likely due to the anesthetic effect of lignocaine combined with the location of the cannula. It was likely that the lignocaine premedication was also administered into the subcutaneous tissue in the antecubital fossa, which readily diffused to nearby nerve fibres resulting in anesthesia of the region. This effectively masked the discomfort that results from direct chemical irritation by propofol on local nociceptors. Furthermore, the antecubital fossa provided a large potential space which enabled a significant volume (over 40 ml in total) of extravasate to accumulate, which masked the discomfort that results from increased compartmental pressures. A larger than normal dose of lignocaine premedication was used in this case with the additional aim of facilitating insertion of the gastroscope and to reduce cough, which further increased the risk of masking pain associated with propofol extravasation.
Given the increasing use of propofol-based total intravenous anesthesia, it is important for clinicians to detect extravasation in a timely manner to minimize morbidity. Clinicians need to remain vigilant for all the signs of extravasation, including patient discomfort, elevated injection pressure, changes at the cannula site, and the absence of clinical response as demonstrated in this case. Antecubital fossa veins should be avoided for this reason as signs of extravasation are harder to detect.

To our knowledge, this is the first reported case of lignocaine premedication masking the pain of propofol extravasation in an awake patient. We recommend that anesthesiologists should be extra vigilant for the possibility of painless propofol extravasation, especially after premedication with lignocaine.
References


