difference, to be sure, but to make the most of time-consuming and costly trials we must consider all options in optimising the value of our results.

Declarations of interest

The author declares that they have no conflicts of interest.

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Anaesthetic management of subcutaneous abscesses: current status

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Editor—Subcutaneous abscesses are superficial pus-filled cavities that are often caused by an acute bacterial infection and can occur anywhere in the skin.[1] Conventional incision and drainage (I&D) remains the primary choice of procedure in the UK, with breakdown of loculations, irrigation, packing, and healing via secondary intention. However, there remains variation in practice as to the anaesthetic choice between topical, local, regional, and general anaesthesia. I&D requires adequate anaesthesia to minimise pain and allow for tolerable manipulation of tissues to optimise: (i) drainage and (ii) aesthetic outcome. The choice of anaesthetic method is likely made as a combination of patient, surgeon, or anaesthetist preference. To date, there are no guidelines to aid anaesthetic choice in the management of patients with subcutaneous abscesses.

We reviewed the literature examining anaesthetic choice for subcutaneous abscess management, highlighting studies comparing anaesthetic methods, to provide an overview of the current status. The National Institute for Health and Care Excellence Evidence Service's Healthcare Database Advanced Search was used to search the following databases and identify suitable records: PubMed, MEDLINE (1945–present), and EMBASE (1974–present), for titles and abstracts specifically relating to both abscesses and anaesthetic. References of full text manuscripts were screened for any additional articles. Screened articles were considered eligible if they both (i) involved the acute management of subcutaneous abscesses and (ii) investigated the effect of anaesthesia on abscess management. The initial search returned 1145 publications. After removal of duplicates, 607 publications remained. Of the screened publications, six articles met the inclusion criteria and were included in the final analysis. Because of the study heterogeneity, a narrative synthesis was conducted for this correspondence (Table 1).

Topical anaesthesia and spontaneous abscess drainage

There is evidence to suggest that topical anaesthetic cream is associated with an increase in spontaneous abscess rupture.[2,3] In a small study (n=41), spontaneous rupture occurred in 51% of patients who received lidocaine/prilocaine cream applied to the abscess for an average of 90 min compared with controls.[2] A larger observational study compared paediatric patients receiving topical lidocaine (n=110) *vs* control (n=59) before I&D reported a 24% (95% confidence interval: 14–32) increase in spontaneous rupture in the topical anaesthetic group.[3]

Topical vs local anaesthesia

A prospective, doubled-blinded RCT was carried out in an adult emergency department in the USA that compared injectable lidocaine with transdermal lidocaine/tetracaine patches for abscess I&D.[4] The study reported a similar level of pain between the injected lidocaine 1% group and lidocaine/tetracaine patch group. No statistically significant difference

Table 1 Characteristics of studies investigating anaesthetic usage in abscess management. I&D, incision and drainage; LET, lidocaine-epinephrine-tetracaine; PS, procedural sedation.

Study	Study design	Participants	Anaesthetic	Findings
Ramirez and colleagues[2] (2009)	Prospective observational	*n*=41 Paediatric	Topical *vs* control	•Lidocaine/prilocaine cream application significantly increases spontaneous rupture before I&D •A randomised trial is suggested to assess the utility of lidocaine/prilocaine cream for abscess management in the paediatric population
Cassidy-Smith and colleagues[3] (2012)	Retrospective cohort, multicentre	*n*=169 Paediatric	Topical *vs* control	•In paediatric patients, topical anaesthetic cream (i) promotes spontaneous drainage and (ii) decreases need for PS
Bourne and colleagues[4] (2014)	Prospective, double-blind RCT	*n*=20 Adult	Local *vs* patch	•Injected lidocaine provides similar analgesia to lidocaine/tetracaine patches for I&D of abscesses •Neither anaesthetic method provides optimal pain control •Lidocaine injections should continue to be used as anaesthetic for I&D abscesses
Sim and Seet[5] (2008)	Prospective observational, single-centre	*n*=14 Adult	Combination sedative	•Ketamine and midazolam are both effective, well-tolerated agents for PS of abscess I&D in adults •Optimum PS/analgesia for abscess I&D remains to be decided
Uspal and colleagues[6] (2013)	Nested cohort study, retrospective and prospective, single-centre	*n*=215 Paediatric	Determine factors associated with PS for abscess I&D in children	•Abscess size and patient age are independent predictors of the use of PS for abscess I&D •Provider practice patterns are independently associated with PS usage
Schmitz and colleagues[7] (2013)	Cross-sectional survey	*n*=350 Emergency department providers	N/A	A large variation in management of abscesses exists, but trends identified: •most providers used: oral/i.v. analgesia, LA or both; linear incisions, packing • most physicians did not use irrigation, order wound cultures routinely, prescribe antibiotics in the absence of specific risk factors

was noted for post-I&D pain scores between the injected lidocaine group and the transdermal lidocaine/tetracaine patch group.[4]

Procedural sedation for incision and drainage

Sim and Seet[5] studied the safety and efficacy of a combination sedative (ketamine and midazolam) for procedural sedation in abscess I&D. They reported 86% patient satisfaction for pain control, and no significant adverse events, concluding a ketamine and midazolam combination is suitable for procedural sedation for I&D of adult patients in emergency departments.

Variation in practice

Uspal and colleagues[6] reported on 215 patients who underwent a simple abscess I&D procedure in which 44% of patients received procedural sedation. Of those not receiving procedural sedation, 62% received topical anaesthesia only, 24% topical and local injected anaesthesia, 5% injected local anaesthetic only, and 8% received no anaesthesia. The study concluded that procedural sedation is independently associated with both patient age and size of abscess induration. In a similar cross-sectional study, Schmitz and colleagues[7] noted that 76% of their 350 respondents reported providing opioids in addition to local anaesthesia, 71% of responders reported administering local anaesthesia over the roof of the abscess, and 60% of responders reported using a field block, demonstrating that there was a large variation in clinician practice in this cohort.

In selected cases, use of a topical or transdermal anaesthetic may be preferable to injectable local anaesthesia as this may remove the pain caused by injection and reduce anxiety, particularly in the paediatric population. Evidence that topical anaesthetic cream is associated with spontaneous abscess rupture and drainage, sometimes negating the need for further I&D, suggests that it may provide some benefit over simple analgesia.

Local anaesthesia may be beneficial where general anaesthesia would be contraindicated in comorbid patients. There is a common belief held amongst clinicians that local anaesthesia works poorly for abscess drainage, based on the theory that as local anaesthetics are weak bases, the environment within an abscess cavity may render them ineffective.[8,9] Local anaesthesia is safe and effective in a small number of abscess drainage studies,[2–4] but none of the identified studies involved patients undergoing general anaesthesia as a comparison and there is variation in practice.[6,7] Intuitively, local anaesthesia may be favoured over general anaesthesia as it allows for shorter operation and recovery times, fewer postoperative complications, lower cost to the healthcare provider, and the ability to perform the procedure without an operating theatre.

In conclusion, abscess I&D under topical or local anaesthesia appears safe and effective, and may confer benefits over other options in simple subcutaneous abscesses. None of the identified studies formally compared all anaesthesia types, and there was significant variation in practice within the literature. This highlights the need for work to inform the development of practice guidelines, particularly to advise on the most appropriate anaesthetic choices in different age groups and different sizes or locations of abscesses. This future research should address outcome measures including intra- and postoperative pain, patient satisfaction, healing and failure rates, aesthetic outcome, and cost-effectiveness to inform future practice.

Declarations of interest

The authors declare that they have no conflicts of interest.

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