



## Anesthetic burns – a burn injury due to a combination of local anaesthetic and heat pack.

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Dear Editor,

The use of either a cold compress or a heat pack in the management of acute pain is widely thought to be of some benefit. However, there is no level-one evidence to support this practice. A Cochrane review on the use of superficial heat or cold for low back pain concluded that the evidence to support this practice was limited [1]. Despite appearing to be a simple and cheap intervention for acute pain, burn injuries have been reported [2-5]. This report describes two burn injuries, where the combined use of local anesthetic and heat packs leads to significant injury.

In the first case, a 45-year-old female was admitted for an elective open abdominal hysterectomy, having been diagnosed with symptomatic uterine fibroids. The operation was performed by a consultant gynaecologist under a standard general anaesthetic. Prior to wound closure, 20ml of 0.75% ropivacaine (Naropin APP Pharmaceuticals USA) was infiltrated into the wound. On arrival at the recovery room, the patient complained of severe abdominal pain, requiring a total of 30mg

of intravenous morphine. Overnight, the patient continued to complain of pain. A nurse supplied the patient with a heat pack, which was applied to the wound. The following day, blistering of the wound was noted. On review by the plastic surgery team, a 1% full to mid dermal burn was diagnosed (Figure 1). One month later, the patient was readmitted to hospital for excision of the burn and primary closure.

In the second case, a 44-year-old female was admitted for an elective open abdominal hysterectomy, having been diagnosed with symptomatic uterine fibroids. The operation was performed by a consultant gynaecologist under a standard general anaesthetic. Prior to wound closure, a consultant anaesthetist performed a transversus abdominus plane (TAP) block with the aid of ultrasound. Unfortunately, the type, concentration and volume of the local anaesthetic used were not recorded in the operation or anaesthetic notes. On arrival at the recovery ward, the TAP block catheters were removed because blood

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was draining from their insertion site. As the patient was in severe pain in the recovery ward, with a pain score of 9/10, a heat pack was applied to the wound. The following day, blistering of the wound was noted. On review by the plastic surgery team, she was diagnosed with a 2% deep dermal burn to the abdominal wall. One week later, the patient was readmitted to hospital for excision of the burn and primary closure.

There have been multiple interventions investigated for the relief of postoperative pain. Despite this, some patients continue to experience severe postoperative pain. Any caring profession would want to do all they can to relieve this suffering. One nursing practise used to attempt pain relief is thermotherapy, the application of



**Figure 1.** Deep dermal burn to abdominal wall due to heat pack (Case 1).

either cold or heat to a painful site. However, there is no level-one evidence to support this intervention. These case reports have shown how such a simple and cheap intervention can prove disastrous. There appear to have been two major contributing factors to these iatrogenic injuries:

1. Application of a heat pack to potentially anaesthetised skin.
2. The gel packs were heated in a microwave oven.

Given the presence of severe pain in the immediate post-operative period, these two cases do raise the question of the alleged benefit of the local anaesthetic.

Immediately following these two cases, heat packs were withdrawn from this hospital. Following an internal review, heat packs have been reintroduced to some areas of the hospital for indications supported by nursing staff but not by the medical literature. It has, however, become hospital policy that heat packs are not to be heated in a microwave oven. Heat packs can only be warmed in warm storage cabinets, e.g. warm blanket storage units or fluid warming units.

### **Conflict of interest statement**

The authors do not declare any conflict of interest or financial support in this study.

### **References**

1. French SD, Cameron M, Walker BF, Reggars JW, Esterman AJ. Superficial heat or cold for low back pain. *Cochrane Database Syst Rev* 2006 Jan 25;(1):CD004750.
2. Jones YJ, Georgesuc D, McCann JD, Anderson RL. Microwave warm compress burns. *Ophthal Plast Reconstr Surg* 2010;26:219.
3. Sever C, Kulahci Y, Uygur F, Karagoz H, Bayram Y, Oksuz S et al. Burn Injury Due to Hot Water Bottle. *Modern Plastic Surgery* 2011;1:1-2.
4. Seth R, Lamyman MJ, Athanassopoulos A, Tyler M. Too close for comfort: accidental burn following subcutaneous mastectomy and immediate implant reconstruction. *J R Soc Med* 2008;101:39-40.
5. Feldman KW, Morray JP, Schaller RT. Thermal injury caused by hot pack application in hypothermic children. *Am J Emerg Med* 1985;3:38-41.