Postoperative washing of sutured wounds

Conrad Harrison a,*, Cian Wade b, Sinclair Gore c

a Medical Sciences Office, University of Oxford, UK
b School of Medicine, University of Oxford, UK
c Department of Plastic Surgery, Churchill Hospital, Oxford, UK

Highlights

- A best evidence topic was conducted according to the standard protocol.
- Best available evidence shows no advantage of keeping surgical wounds dry in the first 48 h.
- More RCTs are needed before conclusive meta-analyses can be constructed.

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Abstract

A best evidence topic was written according to the structured protocol. The three part question addressed was: [In patients undergoing closure of surgical wounds with sutures] does [keeping the wound dry for the first 48 h after closure] [reduce the incidence of surgical site infections (SSIs)]? 4 relevant papers were culled from the literature and appraised. The authors, date, country, population, study type, main outcomes, key results and study weaknesses were tabulated. Current NICE guidelines recommend cleaning surgical wounds with sterile saline only for the first 48 h following skin closure. We found no evidence that washing wounds with tap water during this period increases the incidence of SSIs compared to keeping them dry. Further randomised controlled trials will enable the construction of conclusive systematic reviews and meta-analyses.

1. Introduction

A best evidence topic was written in accordance with the structured protocol described in the international journal of surgery [1].

2. Clinical scenario

Following the excision of a skin lesion your patient asks for advice about washing.

3. Three part question

In [patients undergoing closure of surgical wounds with sutures] does [keeping the wound dry for the first 48 h after closure] [reduce the incidence of surgical site infections (SSIs)]?

4. Search strategy

A search of Medline 1946 to present (15/03/2016) was conducted without any limits, using the NICE Evidence search interface for: (SURGICAL WOUND INFECTION/OR SUTURES/OR POST-OPERATIVE CARE/) AND (dry OR wet OR water OR wash* OR bath* OR shower* OR shampoo*).ti.

5. Search outcome

322 papers were retrieved and 318 were excluded for irrelevance or because they were not reported in the English language. Specifically, 6 papers were excluded for applying interventions longer than 48 h after surgery. A Cochrane review was excluded because it only commented on one study (which has been included).

* Corresponding author. E-mail address: Conrad.harrison@medsci.ox.ac.uk (C. Harrison).
6. Results

Table 1.

7. Discussion

Current NICE guidelines advise washing the surgical wound with sterile saline as opposed to tap water for the first 48 h [6]. For this reason we refined our search to include papers specifically addressing the effect of bathing within 48 h of surgery. We found four relevant studies, three of which were severely limited. This is in keeping with a recent Cochrane review [7] which concluded that the only rigorous randomised controlled trial addressing this question was performed by Heal et al., in 2006 [2]. This study randomised 857 patients undergoing excision of skin lesions at four General Practitioners’ surgeries in North Queensland, Australia. Wounds were closed with nylon sutures and participants were asked either to keep the site dry for 48 h following surgery, or to wash the wound with tap water within 12 h of skin closure. Upon removal of the sutures wounds were assessed for infection using criteria adapted from the Centre for Disease Control national nosocomial infection surveillance system [8]. The incidence of infection in the ‘wet’ group (8.4%; n = 415) was not inferior to that in the ‘dry’ group (8.9%; n = 442) (p < 0.05). This study provides good evidence for advising patients in tropical climates to shower normally following minor skin surgery but it is uncertain whether this result is reproducible in temperate climates where patients are likely to sweat less and dressings adhere more.

In 1982 Voorhees et al. randomised 82 patients undergoing various operations to either wash their wounds on the second postoperative day, or keep them dry until suture removal. Four patients in the dry group suffered wound infections compared with two patients in the bathing group. There was no attempt at blinding the assessors and no sensitivity analysis was performed on these data [3]. Goldberg et al. published a similar study the previous year in which 200 patients with clean head or neck wounds were asked to either keep the closed wound dry until suture removal, or wash it from the following morning. None of the 200 patients developed SSIs. Patients in the wet group were asked to apply topical antibiotic following washes which might have considerably confounded these data. Again, no sensitivity analysis was performed in this study [4]. Noe and Keller report similar results in a case series of 100 consecutive patients undergoing skin excisions. Patients were instructed to wash wounds with soap and water twice a day from the morning after surgery. They reported no surgical site infections [5].

Studies excluded from our search for language reasons were written in German or Polish. The three German studies that compared washing to keeping the wound dry in the 48 h time period yielded similar results to those mentioned above although these were not appraised [9–11].

We found no studies that compare washing surgical wounds with sterile saline and tap water in the first 48 h. The best available evidence demonstrates no benefit of keeping the surgical site dry over washing it with tap water in the first 48 h and allowing patients to shower might improve their comfort. More randomised controlled trials are needed within the 48 h window before conclusive meta-analyses can be constructed and future studies should include arms in which patients wash wounds with sterile saline.

8. Clinical bottom line

The best available evidence demonstrates no increase in infection rates when washing surgical wounds with tap water in the 48 h following surgery as opposed to keeping the site dry. Further randomised controlled trials and studies involving sterile saline washes are needed for conclusive systematic reviews and meta-analyses.

Ethical approval

Not required — BETs title.

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Author contribution

CH — main author.
CW — reviewed article, provided comments, repeated search and appraisals.
SG — reviewed article, provided comments.

### Table 1

Best evidence papers.

| Author, date and country | Patient group | Study type (level of evidence) | Outcomes | Key results | Study weaknesses |
|-------------------------|---------------|--------------------------------|----------|-------------|-----------------|
| Heal, 2006, Australia [2] | 857 patients undergoing minor skin excision by their general practitioner randomised to keeping wound dry for 48 h (n = 442) or allowing it to get wet within 12 h of surgery (n = 415) | Randomised controlled trial Level 1b | Rate of SSI The incidence of SSI in the ‘wet’ group (8.4%) was not inferior to the incidence in the ‘dry’ group (8.9%) (P < 0.05). | Tropical climate could increase incidence of infection in ‘dry’ group |
| Voorhees, 1982, USA [3] | 82 patients undergoing various operations randomised to bathing on the second postoperative day (n = 39) or keeping the wound dry until sutures were removed (n = 43) | Randomised controlled trial without sensitivity analysis Level 4 | Rate of SSI In the ‘dry’ group 4 patients suffered wound infections compared with 2 patients in the bathing group. | No tests of statistical significance |
| Goldberg, 1981, USA [4] | 200 patients undergoing closure of head or neck wounds, 100 allowed to wash immediately and 100 were told to keep sutures dry until removal | Randomised controlled trial without sensitivity analysis Level 4 | Rate of SSI No wound infection occurred in any of the participants | ‘Wet’ group were instructed to use topical antibiotic after washing |
| Noe, 1988, USA [5] | 100 patients undergoing excision of skin lesions | Case series Level 4 | Rate of SSI No wound infection occurred in any of the participants | Not controlled |
Conflict of interests

We have no conflict of interests.

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