SH15: Should hair be clipped from the shoulder?

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Response: The limited studies on the topic do not support routine hair removal as effective for minimizing the risk of periprosthetic shoulder infection. If removing hair, clipping should be performed.

Strength of Recommendation: Limited

Delegate Vote: 47 (96%) agree; 1 (2%) disagree; 1 (2%) abstain

Rationale: Preoperative hair removal has been proposed as a measure to reduce the risk of surgical site infections (SSIs) and to prevent hair from obstructing the incision site.(1) Additionally, hair removal may be used to facilitate the placement of surgical drapes or dressings, particularly in hip and knee surgery.(2) However, a meta-analysis of 19 randomized controlled trials by Lefebvre et al.(3) found no evidence that hair removal reduces the risk of SSIs and revealed that shaving for hair removal increases the risk of infection. When compared to shaving, no hair removal was associated with a significantly lower risk of SSIs (pooled relative risk [RR] in paired meta-analyses of six studies: 0.56). Further analysis showed that shaving resulted in higher infection rates compared to alternative methods such as clipping, chemical depilation, or avoiding hair removal altogether.

Similarly, Seidelman et al.(4) reported that razors should not be used for hair removal due to the higher risk of infection (4.4% with razors vs. 2.5% with clippers). They also emphasized that hair removal, when necessary, should be performed outside of the operating room to further reduce the risk of contamination.

Tanner et al.(5), in an updated Cochrane systematic review in 2021, evaluated the impact of preoperative hair removal on surgical site infection (SSI) risk. They found minimal difference in SSI rates between depilatory cream, clippers, and no hair removal. However, using a razor for hair removal significantly increased SSI risk compared to no removal (relative risk [RR]: 1.82), clipping (RR: 1.64), and depilatory cream (RR: 2.28). The review concluded that due to insufficient robust studies, it remains unclear if hair removal impacts wound complications or costs compared to no removal. Current guidelines recommend against routinely removing hair around the operative site unless it interferes with the procedure. When hair removal is necessary, clippers are advised as the preferred method(6).

In terms of shoulder surgery, Saltzman et al.(7) investigated the effectiveness of different surgical skin-preparation solutions in reducing bacterial contamination before shoulder surgery and the impact of axillary hair removal on bacterial load. Axillary hair removal did not significantly impact the bacterial burden in the shoulder region. The study reported that patients who shaved their axillary hair before surgery had a slightly lower rate of positive cultures (27%) than those who did not shave (35%), but this difference was not statistically significant ($p = 0.40$). This suggests that

preoperative axillary hair removal does not offer a clear advantage in reducing bacterial contamination before shoulder surgery.

Similarly, Maracek et al.(8) investigated the effect of axillary hair removal as a preventive measure. In this study, 85 healthy male volunteers had one axilla randomly clipped, and bacterial cultures were taken before and after 2% chlorhexidine gluconate and 70% isopropyl alcohol preparation. Results showed no significant difference in *C. acnes* burden between clipped and unclipped axillae before or after surgical prep ($p=0.11$, $p=0.34$). However, clipped axillae had a higher total bacterial burden before preparation ($p<0.001$), though this difference disappeared after antiseptic use ($p=0.29$). Surgical preparation significantly reduced *C. acnes* and total bacterial load in both axillae ($p<0.001$). The study concludes that axillary hair removal does not reduce *C. acnes* burden and may even increase overall bacterial load, while chlorhexidine-based surgical prep is highly effective in reducing bacterial contamination.

Pauzenberger et al.(9) explored the impact of hair removal on the risk of infection during shoulder surgery, particularly focusing on *C. acne*s. Patients' axillary hair was clipped before surgery as part of standard preparation, and bacterial cultures were collected before and after skin antisepsis and at the end of surgery. The study found that hair removal did not significantly reduce the bacterial burden in the shoulder region. Despite preoperative antiseptic measures, *C. acnes* contamination increased by the end of surgery, suggesting that routine skin preparation alone is not fully effective in preventing bacterial colonization. These findings indicate that axillary hair removal does not provide a clear benefit in infection prevention.

References

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