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Extended Skin Cleaning On The Shoulder With Chlorhexidine Reduces The Cutaneous Bacterial Load But Fails To Decrease Suture Contamination In Patients Undergoing Arthroscopy Rotator Cuff Repair

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There was no conflict of interest.



Purpose

- To investigate whether preoperative skin cleaning of the chin, neck, and chest with chlorhexidine soap could reduce suture contamination by *Cutibacterium acnes* (*C. acnes*) in patients undergoing arthroscopic rotator cuff repair.



Methods

- Inclusion:
 - primary arthroscopic rotator cuff repair
- Exclusion:
 - age <18 years, previous shoulder surgery, history of shoulder infection, and allergy to chlorhexidine
- Patients were randomized
 - **Control group:** clean shoulder with soap and water
 - **Shoulder group:** clean shoulder with chlorhexidine soap for 3 days
 - **Extended shoulder group:** clean shoulder + chest, back, neck, and face with chlorhexidine soap for 3 days



Enrollment of patients

Enrollment

Assessed for eligibility (n= 106)

Excluded (n= 16)

Decline to participate (n = 6)
Surgery cancelled (n= 6)
Surgery plan changed (n= 3)
Prior shoulder surgery (n = 1)

Randomized (n= 90)

Allocation

Control
group
(n= 32)

Shoulder
group
(n= 29)

Extended
shoulder
group
(n= 29)

Follow up

Lost to follow
up (n = 0)
Discontinued
intervention
(n = 0)

Lost to follow
up (n = 0)
Discontinued
intervention
(n = 0)

Lost to follow
up (n = 0)
Discontinued
intervention
(n = 0)

Analysis

Analyzed (n= 32)
Excluded from
analysis (n= 0)

Analyzed (n= 29)
Excluded from
analysis (n= 0)

Analyzed (n= 29)
Excluded from
analysis (n= 0)

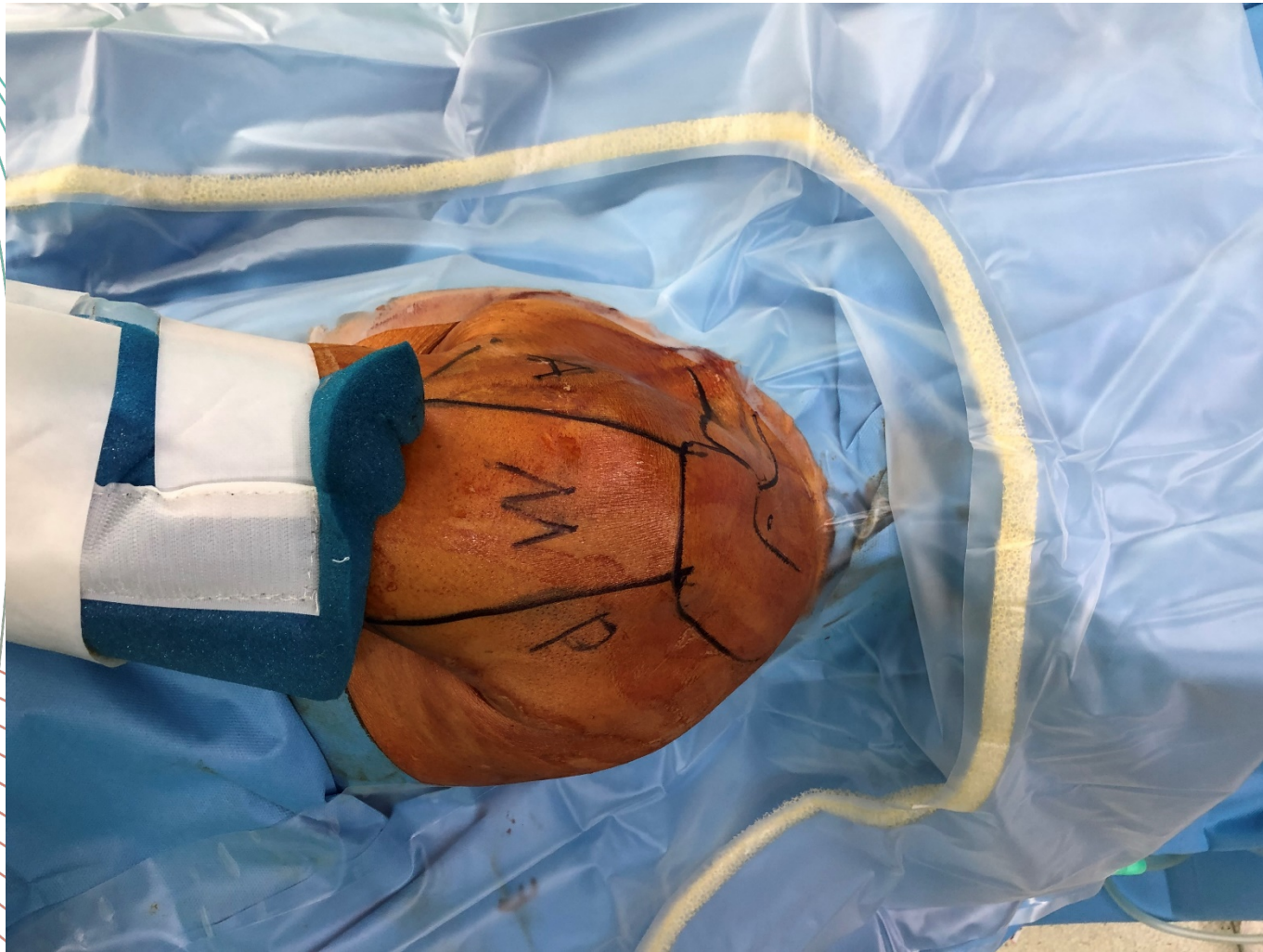


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Skin swab samples obtained



Suture samples



Traditional culture methods + polymerase chain reaction (PCR)



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Results

- 90 patients were enrolled
 - 32 in the control group, 29 in the shoulder group, and 29 in the extended shoulder group
- The culture-positive rate from posterior shoulder ($P = 0.036$)
 - Extended shoulder group (17.2%)
 - Control group (40.6%)
 - Shoulder group (48.3%)
- Detection rates of *C. acnes* in suture samples ($P = 0.603$)
 - Extended shoulder group (17.2%)
 - Control group (12.5%)
 - Shoulder group (13.8%)



Conclusions

- Extensive skin cleaning to the shoulder region with chlorhexidine helps reduce the shoulder cutaneous bacterial load.
- But the detection of *C. acnes* suture contamination in patients undergoing arthroscopic rotator cuff repair remained untouched regardless of the use of chlorhexidine soap in skin cleaning on the preoperative days.



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