



Use of Cadaveric Skin to Teach Basic Suture Skills to Medical Undergraduates

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Received Date: April 17, 2021; **Accepted Date:** April 24, 2021; **Published Date:** May 02, 2021

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Abstract

The integrated curricula being followed by almost all medical schools in Saudi Arabia leave little ground for cadaveric interaction. Cadaver had been the corner stone in medical education, but in the changing era of modern 21st century medical education; most procedural skills are taught on simulators and hi fidelity manikins. For suturing and wound closure, students are given a surgical training pad, to practice. This silicone, latex skin model is far from the real layered and sturdy texture of a human skin. Also, these students hardly ever get another chance to practice their suture skills except when they land up as residents in the hospital emergency unit. At such times, the encounter with a real human patient, trauma and real time skin wounds might baffle them.

Teaching medical undergraduate students suture skills on cadaver skin provides them with a more diverse platform to learn procedure skills. This paper suggests a novel approach to teach suture skills in the form of a 1 hour 'elective session' for interested students to reinforce and practice what they already learnt in the simulation to apply on real human skin under the guidance of experts.

The cadavers are not damaged as the practice event involves only superficial skin which is always reflected away to reveal deeper anatomical structures during routine cadaver dissections. Also, supervising staff during the event flow might serve to maintain integrity of the dissection lab materials.

Such opportunity to practice and repeat the suture and wound closure skills that they learnt in the simulation center on a real cadaver will eventually provide more confident learners.

Keywords: Cadaver; Suture; Suture Techniques; Training / Simulation; Wound Closure

Background

In response to declining instruction in technical skills there is need for a novel method to teach basic procedural skills to medical students.

Students learn most of their suturing skills in the laboratory or simulation sessions during their undergraduate years, as compared to their hospital training in emergency units; according to famous researches.

Undergraduate training programs allows for greater opportunity to participate in the learning of procedural skills because in such setting there is more time to interact with the trainer and peers and 'no urgency' as would be in the event of a real time wound closure

of a critical trauma case.

Most undergraduate students never get the opportunity receive suturing instruction on ‘real cadaveric skin’ even though the materials are amply available in the basic sciences (cadaver and suture kits).

They practice suture skills on a simulated model that is mainly ‘silicone based’ and lacks the layered texture and consistency of real human skin.

Suggested here is an elective laboratory course teaching basic suturing skills (simple interrupted sutures) on cadaver using different anatomic locations.

Justification

Despite the intuitive belief that “the more realistic, the best,” in the simulated training of surgical skills, the available armamentarium of bench models are still not close enough to human skin [1, 2].

Practicing on cadaveric skin under the vigilant guidance of trained facilitators would ensure that the bodies are preserved and not damaged as it would only involve the ‘superficial cutaneous area’ while the deeper anatomic structures will remain intact.

Also, in any pro-section or dissection, the skin is finally reflected as the deeper structural details are exposed. This same skin which has ‘no significance’ while imparting structural (anatomical) knowledge to medical undergraduates could prove ‘immensely valuable’ while imparting procedural skills to students.

Undergraduate medical students trained in this way before they enter their surgery rotations, will be more confident and knowledgeable while encountering actual life situations involving real human skin.

Requirements

Cadaver, needled threads, needle holders, surgical blades with scalpel handles, rat-tooth tweezers, scissors, and marking pens.

Core Team –

1. Task trainer

- One faculty (consultant surgery)
- One faculty (professor anatomy)
- Peer support group (senior clinical year students – up-to six)

2. Coordinator- Any faculty volunteers from department of anatomy

3. Technicians to provide practice tools (cadaver, suture kits, sterile wear)

Event Flow

This will be an ‘elective’ one hour session in the MSK block that will be conducted in the anatomy dissection hall. The students will be assembled in small groups of ‘six’ each and each group will be facilitated by the task trainer.

The overall moderation and flow for the event will be steered by the coordinator. Technicians will be available during the whole session for assistance.

Multiple suture kits and cadaver skin areas will be allotted to students so that one cadaver can be utilized by more than one student group. This will also facilitate the trainer in attending more effectively to a larger learner audience at the same time.

The students will get an opportunity for ‘hands on practice’ of simple interrupted type of suture under direct observation and facilitation by experts and peers. Student feedback will be taken at the end of the session and based on learner needs the session could be repeated for more students.

Scope

The cadaver-skin bench model is a versatile, portable, easy to assemble, and inexpensive complementary option to the already available simulators.

This proposal for training the principles of wound closure surgery on inanimate cadaveric bench models is a further complementary alternative to the arsenal of already established training programs in order to better prepare medical students before their contact with living patients which remains as the cornerstone of medical education.

In future, this type of elective short term training program could be extended to clinical year or fresh graduates for learning the principles of cutaneous surgery.

Competing Interests

None.

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Citation: Hasan T (2021) *Use of Cadaveric Skin to Teach Basic Suture Skills to Medical Undergraduates. Case Reports on Medical and Clinical Cases. CRMCC-105*
