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Cedars-Sinai surgeon shows simple cotton swab slashes

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A simple item found in almost every medicine cabinet – a cotton swab -- may be a key tool in the fight against post-surgical wound infections.

In a sentinel trial, Cedars-Sinai Medical Center surgeon Shirin Towfigh, MD, showed that painless and gentle probing of a wound with a dry cotton swab after surgery dramatically reduced infections in post-operative incision sites: only 3 percent of patients who had the daily probings contracted infections compared to 19 percent of those who didn't -- a rate more than six times higher than that of the study group.

"That a humble cotton swab could have such an impact in reducing the incidence of hospital-acquired infections is really quite remarkable," Towfigh said. "This study reminds us that scientists can still find effective treatments when we are willing to think outside of the 'technology box.' "

Surgical site infections most commonly occur when patients have "dirty" or contaminated wounds, such as after a trauma, bowel surgery, or perforated appendicitis. Until now, no preventative treatment at the contaminated wound site – including topical antibiotics, under-the-skin wound drains or delayed closure of the wound – has proven to reliably decrease these infections. More than 500,000 such infections occur in the U.S each year, accounting for nearly one-quarter of hospital-acquired infections and a major source of illness and cause of death in patients.

The exact mechanism by which the technique prevents surgical site infection is unclear, though Towfigh and colleagues surmise that wound probing allows contaminated fluid trapped within soft tissues to drain, reducing the bacterial burden while maintaining a moist environment needed for successful wound healing.

Besides greatly reducing incision infections, painless probing with the cotton swab resulted in less post-operative pain for patients and significantly shorter hospital stays (five vs. seven days). Patients also had better cosmetic healing of their incisions and – unsurprisingly -- higher satisfaction with their outcomes.

As reported in the *Archives of Surgery*, all study participants had undergone an appendectomy for a perforated appendicitis. Half of the 76 patients in the prospective, randomized trial had their incisions loosely closed with staples, then swabbed daily with iodine (the control group). The study group had their incisions loosely closed. Then, their wounds were probed gently between surgical staples with a dry, sterile cotton tip applicator each day.

"This practice was introduced to me as a surgical resident 15 years ago," Towfigh says. "I've used it routinely since then. While I thought all surgeons were aware of this treatment approach, I learned otherwise when I began my professional career. Since it was evident to me that probing certain wounds after surgery resulted in far fewer infections, I developed this clinical trial so that my colleagues across the country could learn about -- and confidently adopt – the practice."

Towfigh, part of the Cedars-Sinai's Center for Minimally Invasive Surgery and the Department of Surgery, has taught her wound probing technique to the medical and nursing staff throughout Cedars-Sinai Medical Center. The team of colorectal surgeons at Cedars-Sinai has not only adopted the practice but has begun a clinical study in their own

patient population.

As a surgical educator at Cedars-Sinai, Towfigh teaches the probing technique to her medical students, residents and fellows with the expectation they will educate others as they fan out to hospitals nationwide.

Towfigh is a faculty member in the medical center's division of General Surgery.

More information: *Archives of Surgery*, April 2011: "Significant Reduction of Wound Infections with Daily Probing of Contaminated Wounds"

Provided by Cedars-Sinai Medical Center