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Tissue Adhesives in Wound Care

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Preface

The thought of using tissue adhesives first occurred to me during my training. After having to restrain and eventually sedate a 3-year-old for suturing a simple superficial facial laceration, it seemed there must be a better way. After all, modern medicine was full of new advances, and suturing was ancient (oldest suture dates back to 1100 BC). The use of sharp needles to traumatize the skin and using foreign bodies to close wounds also seemed crude.

An ideal method of wound closure should be fast, atraumatic, painless, and produce excellent cosmetic results. So, why not glue? A literature search revealed that tissue adhesives had been tried in various forms for more than 25 years, and were very popular in several European countries and in certain areas of Canada. I was able to try tissue adhesives and quickly became an advocate.

Research led me to believe that the early cyanoacrylate adhesives were appropriate wound closure devices for small superficial lacerations and incisions, and although limited by their physical properties, they clearly had a role in the management of superficial lacerations and incisions. In fact, they became the standard of care for such wounds at the hospitals where I worked, with three or four daily uses in the Emergency Department alone. The lack of widespread use at other centers was puzzling, as was the failure of any manufacturer to seek Food and Drug Administration (FDA) approval in the United States. The answers eventually became evident. Companies marketing and distributing the adhesive had limited expertise in the manufacturing of adhesives and had a poor understanding of how tissue adhesives worked and should be

applied. They provided little, no, or even improper education to physicians. This led to improper use of tissue adhesives for the wrong indications by many physicians and sur-

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geons. They ended up with poor results and walked away from the advantages of tissue adhesives. These circumstances led me to prepare the present work.

New technology allows the manipulation of the cyanoacrylate monomer and the development of sophisticated "medical grade" formulations that are pure, stronger, and FDA approved. Next to the common cold, traumatic wounds are the commonest reason people seek medical care. There are approximately 12 million traumatic wounds and 90 million surgical procedures each year in the United States. While tissue adhesives will not and should not replace all sutures, their availability will change the practice of physicians and surgeons. Most will embrace the new technology and take advantage of its benefits; others will be forced to become knowledgeable because their patients will demand it.

To enter this new era of wound care confidently, physicians and surgeons will need a thorough, concise reference to ensure tissue adhesives are used properly. This book will provide such a reference so that the advantages of tissue adhesives can be made available to patients.

JAMES V. QUINN
ANN ARBOR, MICHIGAN
SEPTEMBER, 1997

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Urgent message: Tissue adhesives are quick, painless, and result in a good cosmetic outcome, making them well-suited for use to treat wounds in urgent care. SIMON TANKSLEY, M.D. Introduction Tissue adhesives are ideal for closing simple lacerations, especially on the face of children.¹⁻³ Such repairs are quick, painless, and do not require removal of sutures. They are also excellent for treating large skin tears in the elderly (Figure 1) and particularly useful for thin, fragile skin because unlike sutures, the adhesives do not tear through the tissues or strangulate them.⁴ Tissue adhesives ar Wound Care Treatment & Management. Updated: Apr 24, 2020. Author: Brian J Daley, MD, MBA, FACS, FCCP, CNSC; Chief Editor: Zubin J Panthaki, MD, CM, FACS, FRCSC more... Pat the wound surface with soft moist gauze; do not disrupt viable granulation tissue. Whirlpool treatment is reserved for large and infected wounds. Provide a moist (not wet) wound bed. Transparent films are highly conformable acrylic adhesive films with no absorptive capacity and little hydrating ability. They may be vapor permeable or perforated. These dressings are useful for clean, dry wounds with minimal exudate. They also are used to secure an underlying absorptive material, to protect high-friction areas and areas that are difficult to bandage (eg, heels) and to secure intravenous catheters. Cyanoacrylate tissue adhesives combine cyanoacetate and formaldehyde in a heat vacuum along with a base to form a liquid monomer.⁹ When the monomer comes into contact with moisture on the skin's surface, it chemically changes into a polymer that binds to the top epithelial layer. This polymer forms a cyanoacrylate bridge, binding the two wound edges together and allowing normal healing to occur below. The conversion from monomer to polymer occurs rapidly, preventing seepage of the adhesive below the wound margins as long as the edges are well apposed. In these rare cases, the adhesive should be removed and standard wound care measures should be initiated. Reapplication of adhesive in such cases is not recommended. Overview. Continence Care & Urology. Overview. Neurosurgery. Overview. Orthopaedic Surgery. Overview. Pain Therapy. Wound Closure. Tissue Adhesive. Tissue Adhesive. Histoacryl®. Protection gets everywhere. Histoacryl® Flexible. Improved closure of surgical incisions. Histoacryl® Octyl. The Solution For Wound Closure. Not all products are registered and approved for sale in all countries or regions. Indications of use may also vary by country and region. subject : Page iii. Tissue Adhesives in Wound Care. James V. Quinn, M.D., FACEP. Clinical Assistant Professor. While tissue adhesives will not and should not replace all sutures, their availability will change the practice of physicians and surgeons. Most will embrace the new technology and take advantage of its benefits; others will be forced to become knowledgeable because their patients will demand it. To enter this new era of wound care confidently, physicians and surgeons will need a thorough, concise reference to ensure tissue adhesives are used properly. This book will provide such a reference so that the advantages of tissue adhesives can be made available to patients. JAMES V. QUINN.