

## Wound Care Management Using Transparent Film Dressing For Reduced Eyelid Edema Skin Elderly

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### Abstract

**Introduction:** In western and develop our countries chronological 65 years is considered as beginning of aging, Elderly need accompaniment person such as caregiver and especially material in house to prevent risk of fall and causes of infection or inflammation delay healing in elderly lose skin integrity, decrease elastin and collagen difficult to healing wounds and hard to heal category. **Method:** case study, reporting grandma (76 years old) slipped in bathroom and has a bruise or edema left eyelid she cannot open the eye, wound care management and skin recovery using transparent film dressing as topical therapeutic therapy for released inflammatory phases in wound healing process. **Result:** Using transparent film dressing twice application (six days) and changing the dressing every 3 days effective for released edema left eyelid. **Conclusion:** The skin loses elasticity, it becomes fragile of skin, dry skin, decrease of skin integrity like tears, bruises and the other, older adults are at risk getting the wounds. Decreased skin elasticity and collagen are causes of difficult healing of the wound and in many cases delay inflammation or prolong infection, using transparent film dressing for topical therapeutic therapy effective for reduced edema skin elderly in six days.

**Keywords :** *Transparent film dressing, Reduced edema, Skin elderly*

### INTRODUCTION

Aging is a lifelong process of growing up and growing old. Aging a progressive physiological changes in an organism lead to senescence, aging takes place in a cell, organ or total organism with the passage of time. Category of older person: with increasing life expectancy and number of people increasing in more than sixty years age, is also further classified for the demography data collection and more other purposes also. In western and developing countries chronological 65 years is considered as the beginning of aging and accordingly the age can be classified as: young old (65-74 years), middle old (75-84 years), old years (>85 years) and final Centenarians (more than 100 years). The functioning of internal organs

including heart, lung, liver and kidney and external organs such as ear, eyes, and skin must be changed or decreased in function. Focusing in external organ changes to the skin loses elasticity it become fragile of skin, dry skin, decrease of skin integrity like a tears, pressure, hyperkeratosis, bruise and the other, older adults are at risk getting the wounds hard to heals category (Mc Nichole, 2016). Predicted in the USA 2030 aging population the leading causes of death have shifted from acute illness to degenerative illness and chronic conditions involve skin and wound condition (Center of Disease Control & prevention, 2013).

Damage to skin aging needs a concentration and focus to treat (care and cure) beginning prevention to implementation by health care professionals and wound care and skin care science. It's important to remember that fragility of skin usually accounts for loss of function in elderly. Therefore, it is important to be able to distinguish normal aging and disease, so that disease can be diagnosed, treated and prevention in early stages. Despite appearances, therefore all tissue even the skin become more laden with water as a consequence of aging. The normal skin integrity structure has a collagen and elastin for repair of the skin. Collagen which constitutes almost one to third of the body protein, is found in the skin, bone and tendons. When first synthesized by cells called fibroblast, insoluble collagen then builds up with age as a result of synthesis exceeding removal. With the increased age, the number of cross linkages within and between collagen molecules increase leading to crystallinity and rigidity which are reflected in a general body stiffness. An important consequence of these changes is decreased permeability of the tissue to the dissolved nutrients, hormone and antibody molecules.

Elastin is the molecule responsible for the elasticity of blood vessel walls, with age progressive loss of elasticity vessels occurs, presumably because of fragmentation of the elastin molecule. The cross linkage of collagen is chemically similar to the cross linkage that occurs in the skin. The intact skin has a cell turn

over to several weeks, with the capability, shared by all renewal tissue, of temporarily increasing the rate of cell production by a large factor in response to injury. The rate of wound healing decreases with age, rapidly at first and more slowly as age increases.

### **Wound healing Process**

The process of cutaneous wound healing is an incredibly complex process, dependent on highly regulated factors working in concert to restore injured skin toward repair barrier function. Every individual getting healing wound after injured but some condition occur delay healing if a have impedance such as colony bacteria, incorrect dressing for covering the wound, age of elderly, comorbid such as (diabetes, vascular disease, malignancy), medication (steroid, NSAID, Anticoagulant), stressor and malnutrition. Normal healing processes in acute wounds occur simultaneously and are generally derived into three main phases of wound healing: Inflammatory phases, proliferative phases and last remodeling or maturation phases. First phases in wound healing beginning hemostasis process in this phases after injured in the skin have time to 3 hour for coagulating process using self responses: vasoconstriction response wall vessel for narrow blood flow to target injured, platelet response this phases have platelet (aggregation to stop the bleeding, release prostaglandin, serotone and ADP),

biochemical response occur fibrinolysis and retraction blood clot in wound edges.

After hemostasis continues to inflammatory phases, these phases have a three or five days sign of skin erythema (redness), swelling (edema), heat and discomfort wound and wound edges. Capillaries contract and thrombose to facilitate hemostasis process, ischemia causes release of histamine and other vasoactive chemicals that cause vasodilatation of surrounding skin. Phagocytosis arrival of PolyMorpho nuclearcyte (PMN) to protect wounds from bacteria invasion and macrophage from monocytes to clear the wound of devitalized tissue. Active growth factor platelet derived (PDGF) and transforming growth factor B (TGFB). The inflammatory phase is critical to repair a dependence on normal number and function of neutrophils and macrophages playing an important role. Unfortunately, aging is associated with a reduced number of macrophages, which at least partially explains the diminished inflammatory response that is typically seen.

Proliferation/ reconstruction phases need time 3 days to 21 days, this phases macrophage continue to cleanse the wound from debris and impedance wound healing, promote fibroblast to produce synthesis collagen, Occur neoangiogenesis process/ new vascular network to create collateral vessel, extracellular matrix (ECM) promote granulation tissue,

Epithelialization/ migrate epithelial cell and wound contraction from edge to the wound base.

Maturation or remodeling phases need 21 days to 1 years to heal 80% as strong the original tissue, remodeling tissue the main function is to increase the tensile strength (organized collagen and elastin), skin pink color, vascular maturation, wound edge contraction, collagen remodeling, migration fibroblast and keratinocyte. This may be due in part to compromised fibroblast function and in part to comorbidities affecting tissue oxygenation and nutrition status (WOCN, 2016).

The concept that is believed and recognized following the process in wound care that is known today is modern dressing with an occlusive concept. This concept was introduced by experts in wound care known as moist wound healing (Schultz, 1993; WOCN, 2014, 2016) or the process of wound healing with the moist concept. Theory which was first introduced by George D. Winter of 1962 was done with a closed technique to achieve moist levels using parafilm (old film generation material) for closing the wound. This concept was first published in the journal Nature, that is "conditions that are closed, the healing rate is two times faster than the open wound conditions or dry concept".

Transparent film dressing (TFD) is transparent adhesive are thin sheets of plastic of a layer adhesive on one side surface. Technology involving the product of the film renders these dressing semi occlusive or semi permeable systems. That is allowed for moisture vapor transfer and atmosphere gas exchange while remaining impermeable of liquid, solid, and bacteria. According to Halim et al (2012), controlling infection and inflammation must be increased to reduce the protease level to a normal level which makes the skin's biochemical balance conditions, so that epithelial cells can replicate.

Transparent film dressing (TFD) in the process wound care is used in inflammation phases because of evaporative or gas vapor and reduces edema to occur maximally moisture transmission vapor rate (MTVR) and as skin barrier protection. Discontinuous application of adhesive confers improved MTVR, preventing maceration is considered to be a complication in the wound care process because it can cause a lot of trouble for patient recovery. Transparent film dressing have an effectively as waterproof dressing and many variety choice, reduced edema and pain management (Wound care handbook, 2018), transparent film dressing effectiveness as skin barrier protection to prevent maceration from moderate to heavy exudate from wound bed and significant more 75% migrate epithelium cell in proliferation stage wound healing process (Warja, 2019), may be used to protect Intravenous catheter

site and newly healed wounds. Wear time of 3 to 7 days is considered adequate topical treatment (WOCN, 2016).

## **METHOD**

Case Study: Grandma 76 years old, have a bruises or hematoma in left eyelid causes of slip in bathroom going to clinic 2 days after injured, patient have a hypertension, arrhythmias (atrial fibrillation) and diabetes with glucose uncontrolled. She is not married and lives with her three sister elderly too, no caregiver in their house. Wound care management goes back to healing process science, this condition in inflammation phases and prevents to delay healing causes of infection. Wound care method basic concept moist wound healing in inflammation phases using transparent film dressing as topical therapeutic anti inflammation adopted acronym TIME original framework in wound care (Schultz, 2003). Transparent film dressing applied in 3 days focusing bruises in left eyelid after cleansing using soap gentle and physiology water such as normal saline and antimicrobial topical solution octenidine and surfactant. Transparent film dressing work into the wound creates a moisture environment and evaporation to release inflammation phases. Transparent film dressing applies and changing dressing every 3 days to evaluating wound and improvement healing process.



Figure 1: Edema left eyelid after injuries



Figure 2: Application Transparent film dressing

## RESULT

Elderly risk of fall and injuries, in this case grandma has bruises or edema (hematoma) in left eyelid causes of slip in bathroom. Bruises or edema sign of inflammation phases in healing wound process, this patient using transparent film dressing as topical therapeutic for skin and wound care management. Transparent film dressing works to evaporative or gas vapor and reduce edema to occur maximally moisture

transmission vapor rate (MTVR). First time to apply transparent film dressing easy to use have an adhesive material and easy to remove. Transparent film dressing changing every 3 days and indicator work the transparent film dressing wrinkled happened because of reduced edema. Six days or twice applied show the good result using transparent film dressing as topical therapeutic wound care and skin care management in cases bruises or edema (hematoma) effective for reduced edema in healing wound inflammation phases.



Figure 3: Six days after application, show reduced edema.

## CONCLUSION

Elderly need accompaniment such as a caregiver and especially material in house to prevent risk of fall. Focusing on external organ changes to the skin loses elasticity. It becomes fragile of skin, dry skin, decrease of skin integrity like tears, calluses, bruises and the other, older adults are at risk getting the wounds hard to heal. Decreased skin elasticity and collagen are causes of difficult

healing the wound and many cases delay inflammation or prolong infection.

In this case grandma, 76 years old, has bruises or edema left eyelid causes of slip in bathroom, bruises or edema inflammation category in wound healing process normal. Wound care and skin management for released inflammation topical therapy using transparent film dressing. Transparent film dressing can evaporative or gas vapor and reduce edema to occur maximally moisture transmission vapor rate (MTVR) patient recovery.

Transparent film dressing is easy to apply and remove in the skin and change the dressing every 3 days, and the result is effective to reduce edema on the left eyelid in six days and she get open the eye.

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