

“Hyaluronic acid - a natural tissue coating for
minimizing adhesion formation”

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Histological data suggest that hyaluronic acid, a high Molecular Weight viscous solution, may be used as a tissue coating minimizes surgical trauma associated with tissue damage.

Undesired tissue damage results in most surgical procedures such as cutting desiccation, ischemic, and manipulative abrasions. Suture lines at closed incisions, areas of abrasive contacts that occur between tissue surfaces and the many devices used in surgery, i.e. clamps, gloves, sponges, etc. are known to be problematic, painful sites resulting from damaged cell membrane surfaces.¹⁻²

The use of hyaluronic acid, is directed at minimizing the tissue damage caused by desiccation and handling during surgery. This methodology is highly efficacious when applied immediately after entering the surgical field and before any significant manipulation occurs. Hyaluronic acid is biocompatible, does not interfere with normal healing of incisions and is transparent within the surgical site. Hyaluronic acid exhibits excellent handling properties in the surgical field making it clinically desirable and advantageous.

Macromolecular solutions such as hyaluronic acid, for example, have been popular substances in the effort toward adhesion prevention. Macromolecular solutions are believed to have an anti-adhesion effect by the following mechanisms: a “flotation” effect, which separates viscera and a “siliconizing” effect on the intestinal surface³, which represents a barrier to adhesion formation.

What makes hyaluronic acid superior is that it is a biocompatible, high molecular weight mucopolysaccharide found naturally in soft tissue and is a major component of the extracellular matrix and synovial fluid.⁴ Research has shown that the viscous macromolecule of hyaluronic acid mechanically stops the oozing from disrupted microvasculi.⁵ Preliminary studies show that hyaluronic acid does coat the peritoneum resulting in the suppression of post-surgical bleeding.⁶ Thus, one mechanism of action of the hyaluronic acid solution is the mechanical separation of traumatized serosa from normal serosa by its viscous macromolecule.⁷

Studies suggest that hyaluronic acid proves to be a valuable adjunct to surgical procedures as a protective tissue coating; a coating which can prevent severe manipulative trauma and thereby reduce the incidence and severity of postoperative pain and further complications resulting from unwanted tissue damage.

References

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