

17

EXAMPLE 15

ADHESION OF THE SKIN IN PLASTIC AND REPARATORY SURGERY

The muscle area is brushed with the oxidizing solution and, after the surplus solution has been removed using a compress, a liquid adhesive composition according to the invention is then sprayed onto the muscle area, after which the two tissues are joined together.

This example may be applied to any surgery for maintaining two tissues in a cohesive manner, it being possible for one or both of the surfaces to be brushed, either with oxidizing solution or with the composition according to the invention, after which a spraying is carried out, either with the composition or with the oxidizing solution, before joining the tissues together.

EXAMPLE 16 PROTECTION OF ANASTOMOSES

The invention may be used for protecting anastomoses during vascular, visceral, gynaecological or urological surgery. After spraying a solution of adhesive monomer composition according to the invention on the surface of the anastomosis, an anastomosis compress or compression patch impregnated with the oxidizing solution is placed on the tissue thus covered with adhesive monomer.

As a variant, the anastomosis may be surrounded by an anastomosis patch or compress which has been preimpregnated with adhesive monomer, followed by spraying the oxidizing solution onto the material in order to obtain its adhesion to the tissue.

EXAMPLE 17

TISSUE FILLING

Following an exeresis of soft tissue or bone tissue, the cavity to be filled is covered with adhesive monomer according to Example 9 and a suspension of collagen ballotini which has been partially impregnated with the oxidizing solution is then introduced in order to fill the cavity.

As a variant, the cavity may be filled with a suspension of ballotini or a collagen solution which has been impregnated with the adhesive monomer, followed by injection of an oxidizing solution of aqueous iodine into the filled volume.

EXAMPLE 18

TISSUE RECONSTITUTION

During surgery on the dura mater, after exeresis of the pathological tissue, a patch, for example a collagen patch, is introduced in order to replace the excised tissue and to allow the formation of new tissue. Adhesive monomer composition is deposited around the edge of the patch and it is then placed in position and sprayed with the oxidizing solution in order to ensure adhesion and sealing of the gluing.

EXAMPLE 19

TISSUE PROTECTION

In order to protect an internal tissue such as a mucous membrane or an external tissue, or in order to improve a cicatrization, the tissue is impregnated with the oxidizing preparation, the surplus oxidizing solution is removed, if necessary, and an adhesive monomer composition is sprayed

18

on. It is subsequently possible to introduce a protective compress, for example one made of collagen.

EXAMPLE 20

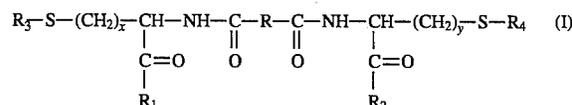
HAEMOSTASIS PROCESS

In case of serious bleeding in cardiovascular, abdominal or thoracic surgery, for example during hepatectomy, a solution of adhesive monomer according to the invention is sprayed onto the tissue slice and a compress which has been preimpregnated with oxidizing solution is applied, and the compression is maintained until haemostasis is obtained.

Where appropriate, in particular in the case of light bleeding, haemostasis may be achieved by the simple application of adhesive monomer and of the oxidizing solution by spraying in a successive or concomitant manner.

We claim:

1. Adhesive, biocompatible, biodegradable and non-toxic composition for surgical use, in particular for binding biological tissues together or for binding a tissue and an implanted biomaterial, said composition being polymerizable and/or cross-linkable to form multidirectional networks, wherein the adhesive composition comprises at least an organic product containing at least two thiol functions and carboxylic functions, which may be protected or unprotected, and/or carbonyl functions, of the following general formula:

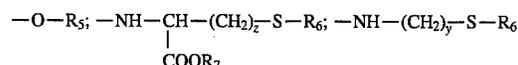


in which:

x and y=1 or 2,

R is a hydrocarbon, chain containing from 1 to 50 carbon atoms, which is optionally substituted by a hydroxy, amino, acid or ester group, with the proviso that the radical $-CO-R-CO-$ is different from citric acid residue,

R₁ and R₂ are identical or different and are chosen from the following groups:

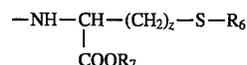


wherein z=1 or 2,

R₃, R₄, R₅, R₆ and R₇ independently represent hydrogen or an aliphatic and/or alicyclic and/or aromatic group, with the proviso that when said organic product comprises only two thiol functions, the composition includes also at least another organic product of the general formula (I) having at least three thiol functions.

2. Composition according to claim 1, wherein R₁ and R₂ represent $-O-R_5$.

3. Composition according to claim 1, wherein R₁ represents:



and R₂ represents $-O-R_5$ or vice versa.

4. Composition according to claim 1, wherein R₁ and R₂ consist of the radical