Preface

Fibrin plays a prominent role in wound healing. It has a hemostatic effect, induces cellular response to wound damage, and, by forming strands to build a matrix, assists in neovascularization and fibroblast proliferation.


It took more than two decades for this ingenious idea to be rediscovered. In 1940, Young and Medawar [8] reported on experimental nerve anastomosis by sealing. Similarly, Tarlov and Benjamin [7] reunited nerves with plasma clots in 1943. Tarlov improved the results obtained with clot anastomosing of nerves by avoiding tension at the nerve stumps. In 1944, Cronkite et al. [2] reported on an initial series of eight cases in which fibrinogen and thrombin had been used successfully for anchoring skin grafts.

Although these early attempts suggested the basic advantages of using a biomaterial for wound closure – such as complete absorption, improved wound healing, and excellent tissue tolerance – the failure rate was relatively high, mainly because the fibrinogen employed had poor adhesive strength and the sealing did not last. It was because of these unsatisfactory results that the technique was not further pursued in the decades to follow.

In 1972, the use of fibrin as a biologic adhesive was revived by Matras et al. [6], who successfully employed a fibrinogen cryoprecipitate for reuniting peripheral nerves in an animal model. Matras and Kuderna used autologous material in the first successful human application in 1975 [5]. It was not until a special cryoprecipitation process had been developed that it was possible to produce a highly concentrated fibrinogen solution with an enriched factor XIII content, as the basis of two-component fibrin sealant.

In the meantime, the controversial issue of virus transmission, including the transmission of HTLV-III, by the blood product Tisseel (Tissucol) has been resolved. In addition to subjecting Tisseel (Tissucol) to in-process virus inactivation, both the source material and final product are routinely screened for HTLV-III antibody.

Following the first international symposium on fibrin sealant in Vienna in 1985, which dealt with the use of the product in various surgical disciplines, this seven-
Preface

Volume study attempts to present current knowledge relating to the method of fibrin sealing. The disciplines covered are: general and abdominal surgery; ophthalmology and neurosurgery; otorhinolaryngology; plastic, maxillofacial and dental surgery; thoracic and cardiovascular surgery; traumatology and orthopaedics; urology, gynaecology and obstetrics. Each volume is preceded by a general chapter on the principles of fibrin sealing, methods of application, aspects of quality control, and safety studies.

Today, fibrin sealing has become an accepted tool in many fields of surgery. In many areas, fibrin sealing has superseded conventional surgical techniques, increased postoperative safety, and even made new therapeutic approaches possible.

We would like to thank all authors for their excellent contributions and helpful photographs, which have made these seven volumes on fibrin sealing possible.

Vienna, Juni 1986

G. Schlag
H. Redl
Table of Contents

I. Principles of Fibrin Sealing

The Importance of Fibrin in Wound Repair
G. Schlag, H. Redl, M. Turnher, and H. P. Dinges .......................... 3

Fibrin Sealant and Its Modes of Application
H. Redl, and G. Schlag .................................................. 13

Properties of Different Tissue Sealants with Special Emphasis
on Fibrinogen-Based Preparations
H. Redl, and G. Schlag .................................................. 27

Lysis and Absorption of Fibrin Sealant (Tissucol/Tisseel)
(In Vitro and In Vivo Experiments)
H. Pfliiger ................................................................. 39

Preliminary Results of a Randomized Controlled Study on the Risk of
Hepatitis Transmission of a Two-Component Fibrin Sealant (Tissucol/Tisseel)
G. Eder, M. Neumann, R. Cerwenka, and K. Baumgarten ............. 51

II. Otorhinolaryngology

Remarks on a Daily Use of Tissucol (Tisseel) during 5 Years in Otology
and Otoneurosurgery
J. P. Bebear, M. Bagot d’Arc, and M. Portmann ....................... 63

Selected Aspects of ENT Surgery in Central Midfacial Lesions
W. Elies ................................................................. 68
<table>
<thead>
<tr>
<th>Title</th>
<th>Author(s)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of Fibrin Glue in Otorhinolaryngology</td>
<td>O. Ribari</td>
<td>76</td>
</tr>
<tr>
<td>Endoscopic Lateral Cordopexy</td>
<td>C. Naumann</td>
<td>82</td>
</tr>
<tr>
<td>The Use of Fibrin Sealant in Ear, Nose and Throat Surgery</td>
<td>M. de Vincentiis, G. Ruoppolo, and A. Gallo</td>
<td>86</td>
</tr>
<tr>
<td>The Use of Fibrin Glue in Tympanoplasty</td>
<td>T. Haid, G. Gschrey, and R. Panis</td>
<td>91</td>
</tr>
<tr>
<td>Tissucol (Tisseel) in Tympanoplasty: Personal Observations</td>
<td>R. Filipo, E. de Seta, and M. Barbara</td>
<td>97</td>
</tr>
<tr>
<td>The Use of Fibrin Sealant in Middle Ear Surgery and in Otoneurosurgery</td>
<td>C. Zini, S. Bacciu, R. Scandellari, and P. Delogu</td>
<td>102</td>
</tr>
<tr>
<td>Simplified Application of Fibrinous Glue in Middle-Ear Surgery</td>
<td>H. G. Chüden</td>
<td>111</td>
</tr>
<tr>
<td>A New Application Method for Fibrin Sealant: The Glue Gun</td>
<td>R. A. Tange</td>
<td>115</td>
</tr>
<tr>
<td>Fibrin Sealant (Tissucol/Tisseel) in Ear Surgery (A 4-Year Experience)</td>
<td>G. Babighian</td>
<td>118</td>
</tr>
<tr>
<td>En Bloc Ethmoidectomy Through the Combined Craniofacial Approach:</td>
<td>G. P. Teatini, F. Meloni, and E. Zorzi</td>
<td>123</td>
</tr>
<tr>
<td>Surgical Technique</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Application of Human Fibrin Seal (Tissucol/Tisseel) in Tonsillectomies and Adenectomies in Patients with Bleeding Disorders. Ten Years' Clinical Experience</td>
<td>H. Gastpar</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>The Use of Fibrin Glue in Auricular Surgery</td>
<td>133</td>
<td></td>
</tr>
<tr>
<td>H. Weerda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reconstruction of the Open Mastoidectomized Ear: Two Surgical Techniques</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>F. Piragine, P. Bruschini, S. Sellari-Franceschini, and S. Berrettini</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fibrinogen Glue in Reconstructive Surgery of the Skull Base</td>
<td>147</td>
<td></td>
</tr>
<tr>
<td>W. Draf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject Index</td>
<td>163</td>
<td></td>
</tr>
</tbody>
</table>
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