EMOTERAPIA TOPICA

LUCA SANTOLERI

Azienda Ospedaliera
Ospedale Niguarda Ca'Granda
MILANO

SIMT

A.O. NIGUARDA CA' GRANDA

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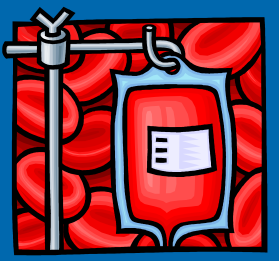
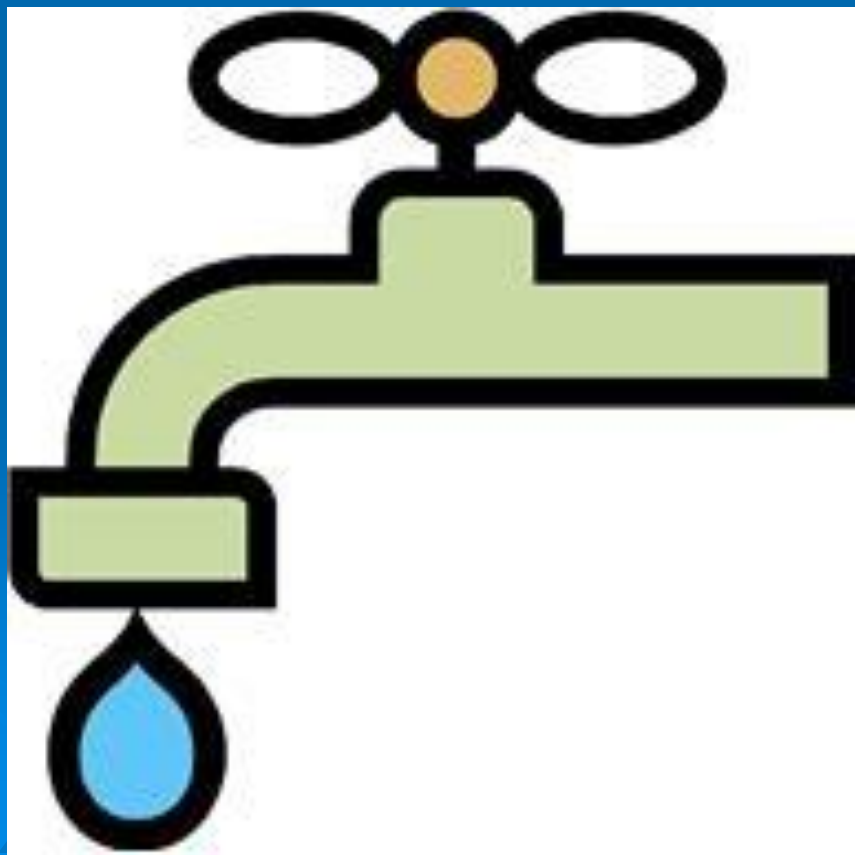
RISCHIO

BENEFICIO





Colla di fibrina

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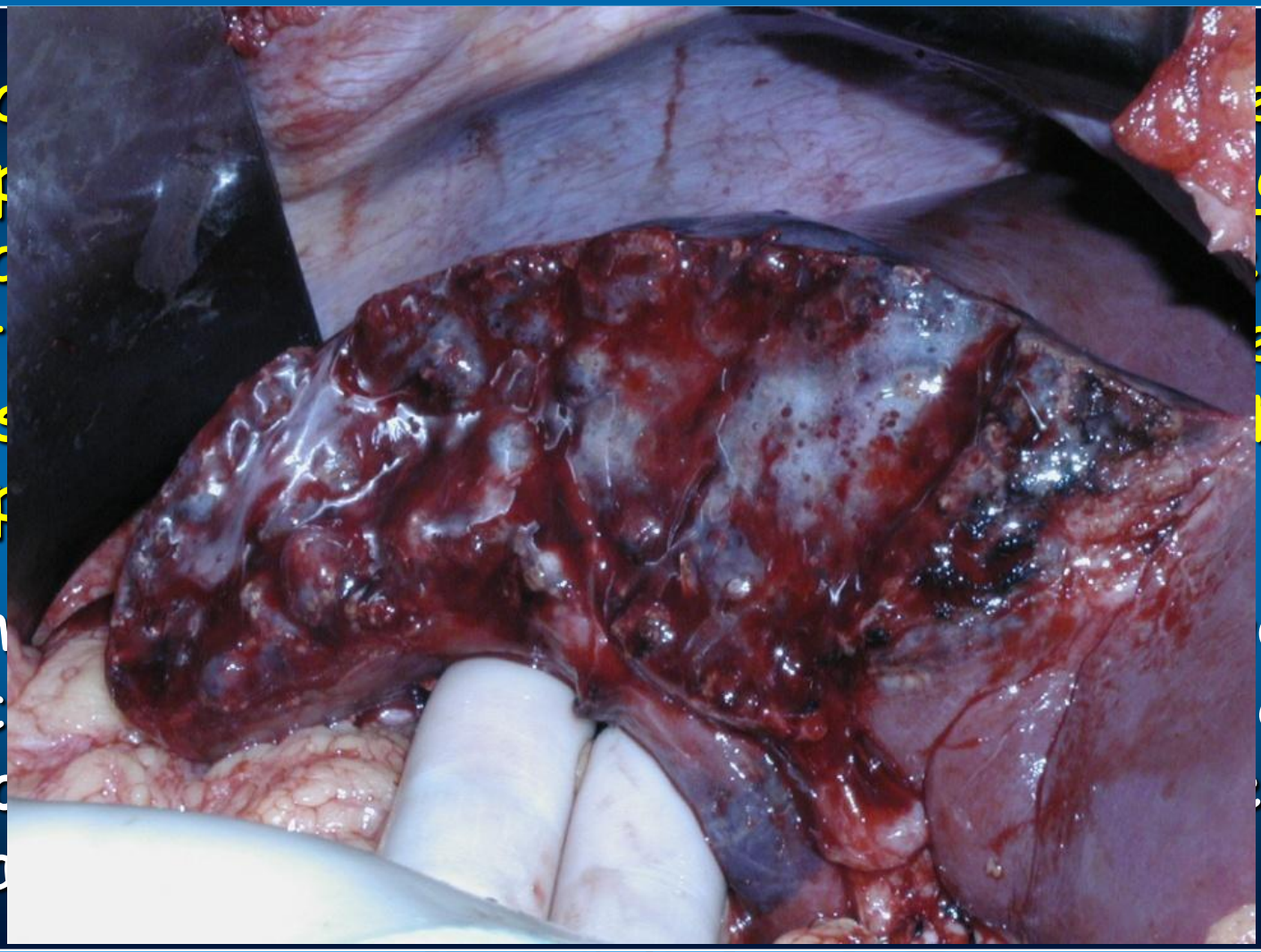

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Colla di fibrina

Vantaggi:

- promuove la formazione in pochi secondi di un coagulo ben adeso ai tessuti;
- stimola i processi riparativi dei tessuti lesi su cui é applicata;
- é priva di tossicità per i tessuti su cui è applicata;
- é completamente riassorbita in qualche giorno.

Colla di fibrina

Attualmente sono utilizzati diversi tipi di "colla di fibrina" che vengono normalmente suddivisi in 2 categorie:

- **i prodotti commerciali**
- **i prodotti realizzati in laboratorio (o "home-made")**

Si differenziano per la metodologia di preparazione del concentrato di fibrinogeno.

Nei prodotti commerciali il fibrinogeno é estratto da pool di un elevato numero di unità di plasma prevalentemente utilizzando il processo di frazionamento di Cohn.

Nei prodotti "home-made" il fibrinogeno viene ottenuto da singole unità di plasma allogenico o autologo per lo più attraverso il processo della crioprecipitazione.

ISBT Science Series (2009) **4**, 136–142

ORIGINAL PAPER 4A-S25-02

Blood-derived biomaterials: fibrin sealant, platelet gel and platelet fibrin glue

T. Burnouf,[1] C.-Y. Su,[2] M. Radosevich,[1] H. Goubran[3] & M. El-Ekiaby[4]

	Fibrin sealant	
Producer	Fractionator	Blood establishment
Components	Fractionated fibrinogen + thrombin	Cryoprecipitate + thrombin
Donor	Multiple	Single-donor
Source	Allogenic	Allogenic and autologous
Fibrinogen (g/l)[a]	> 80	15–25
Thrombin origin	Human	Human or bovine
Viral inactivation	Yes	No
Growth factors	No	No
Clinical use	Sealing and haemostatic agent	Sealing and haemostatic agent

REVIEW

Hemostats, sealants, and adhesives: components of the surgical toolbox

William D. Spotnitz and Sandra Burks

TRANSFUSION 2008;48:1502-1516.

The ideal hemostat, sealant, or adhesive

Five performance categories remain important: safety, efficacy, usability, cost, and approvability.

THE COCHRANE COLLABORATION®

Fibrin sealant use for minimising peri-operative allogeneic blood transfusion (Review)

Published in The Cochrane Library 2009, Issue 3

Carless PA, Henry DA, Anthony DM

At present there are insufficient data to allow a definitive conclusion that one fibrin sealant is superior to another in achieving haemostasis and reducing allogeneic RBC transfusion.

Colla di fibrina

Usi clinici:

La colla di fibrina, sia del commercio che "home made", è largamente impiegata in campo chirurgico per:

- **facilitare l'adesione tessutale**
- **coadiuvare le suture chirurgiche**
- **favorire l'emostasi**

Benché in letteratura siano reperibili numerosissimi studi clinici in una ampia varietà di applicazioni chirurgiche, la maggior parte delle pubblicazioni si riferiscono a studi non controllati e/o condotti su un limitato numero di pazienti.

Colla di fibrina

Usi clinici:

La CF è utilizzata nei seguenti ambiti chirugici:

- cardiovascolare
- toraco-polmonare
- neurochirurgico
- addominale, in particolare nelle epatectomie
- ortopedico
- plastico-ricostruttivo
- otorinolaringoiatrico
- urologico
- oculistico
- ostetrico-neonatale

Colla di fibrina

Usi clinici:

Chirurgia Cardiovascolare

Provata efficacia come:

- Emostatico locale per ridurre
  - Emorragia mediastinica (Responsabile di reintervento in 3-5% dei casi)
- Adiuvante nel consolidare
  - Suture di anastomosi vascolari
  - Sedi di punture d'ago

E' il campo in cui è stata raccolta la più larga esperienza.

Colla di fibrina

Usi clinici:

Chirurgia Cardiovascolare

La FG è utilizzata come emostatico per ridurre il sanguinamento, lento e diffuso, che si produce su ampie superfici di tessuti cruentati o lungo linee di sutura di anastomosi vascolari.

Autore	Rivista	Intervento
Nakajima T et al	Ann Thorac Surg, 2007	Aneurisma dissecante dell'aorta
Zanchetta M et al	J Endovasc Ther, 2007	Aneurisma dell'aorta addominale
Toda K et al	Interact Cardiovasc Thorac Surg, 2007	Ferite penetranti del miocardio
QI XR et al	J Biomed Mater Res A, 2007	Bypass aorto/coronarico

Colla di fibrina

Usi clinici: Chirurgia Cardiovascolare

Randomized clinical trial

British Journal of Surgery, 2010

Randomized clinical trial of tranexamic acid-free fibrin sealant during vascular surgical procedures

R. T. A. Chalmers[1], R. C. Darling III[3], J. T. Wingard[4], I. Chetter[2], B. Cutler[5], J. A. Kern[6] and J. C. Hart[7]

prospective RCT comparing the haemostatic effectiveness of fibrin sealant (75 patients) or manual compression (72) in polytetrafluoroethylene (PTFE) arterial anastomoses.

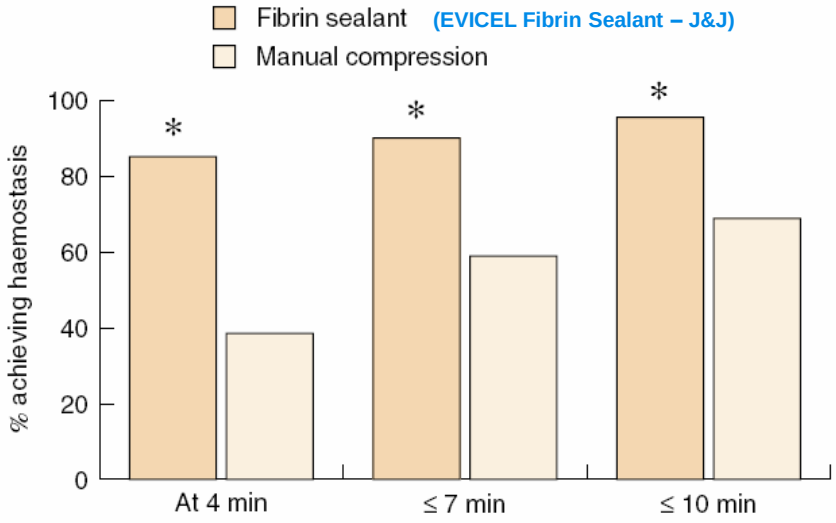

Fig. 2 Proportion of patients who achieved haemostasis at 4 min, and within 7 and 10 min after randomization. *$P < 0{\cdot}001$ *versus* manual compression (logistic model with treatment, site and artery type as factors)

EUROPEAN JOURNAL OF CARDIO-THORACIC

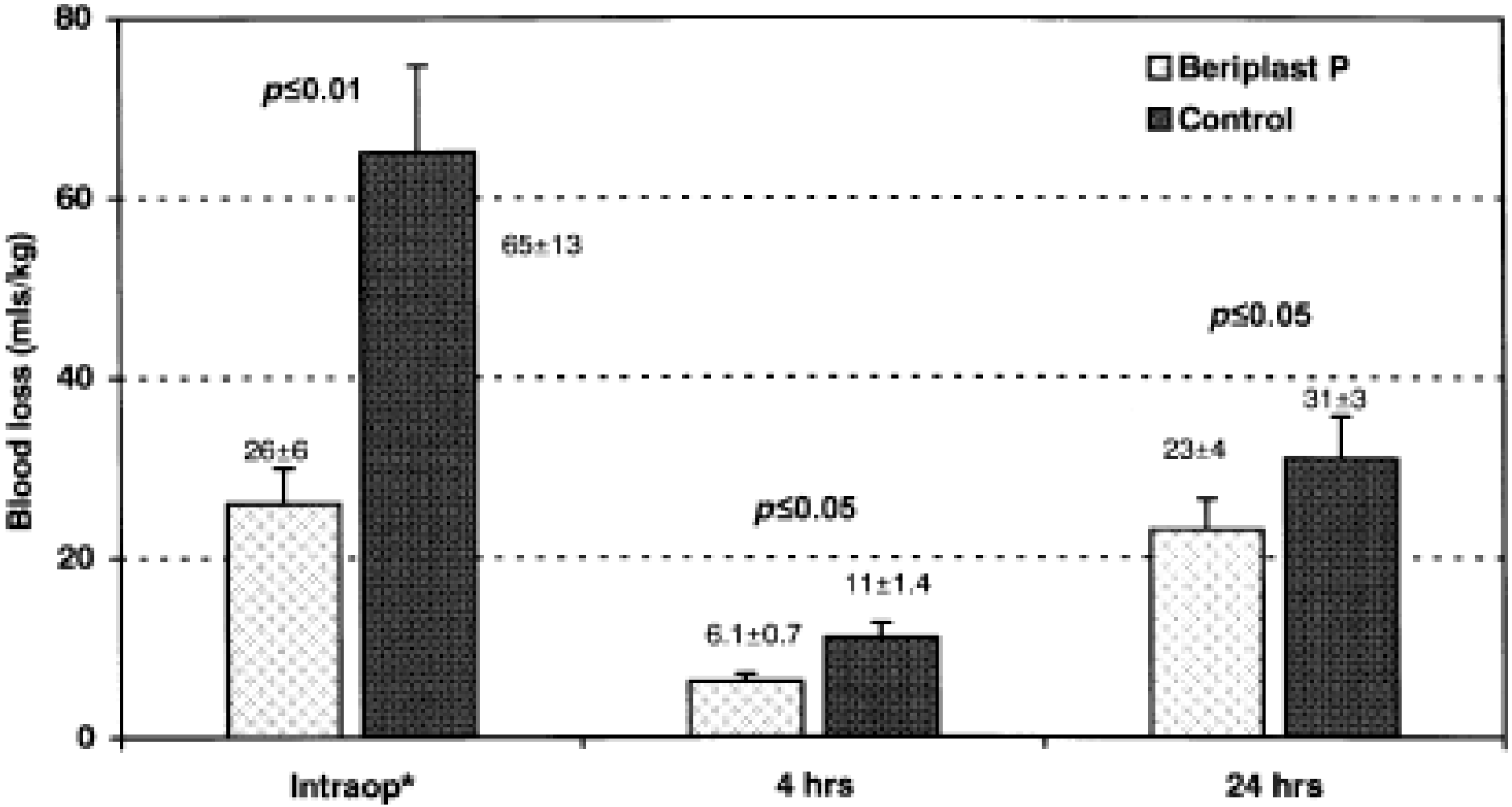

Fig. 1. Intra- and post-operative blood loss. *From neutralisation of heparin to chest closure.

Hemostatic effectiveness of a new application method for fibrin glue, the "Rub-and Spray Method ", in emergency aortic surgery for acute aortic dissection

Minato Naoki et al, Ann Thorac Cardiovasc Surgery 2009;15: 265-271

	Group G (with FG) 10 pts	Group C (without FG) 10 pts	P value
Blood loss during hemostatic period (mL)	99 ± 76	257 ± 163	0.016
Blood loss during postoperative 12 hrs (mL)	268 ± 93	526 ± 363	0.054

Colla di fibrina

Usi clinici:

Chirurgia Toraco-polmonare

Risultati positivi sono stati ottenuti nel trattamento di lesioni o fistole bronchiali che possono verificarsi nel corso di interventi di decorticazione o resezione polmonare.

Autore	Rivista	Intervento
Sivrikoz CM et al Keckler SJ et al	Ann Thorac Surg, 2007 Ann Thorac Surg, 2007	Trattamento di fistola broncopleurica
Ueda K et al	Ann Thorac Surg, 2007	Resezione polmonare
Muramatsu T et al	Surg Today, 2007	Pneumotorace spontaneo

Sutureless Pneumostasis Using Polyglycolic Acid Mesh as Artificial Pleura During Video-Assisted Major Pulmonary Resection

Kazuhiro Ueda, MD, Toshiki Tanaka, MD, Mitsutaka Jinbo, MD, Takaharu Yagi, MD, Tao-Sheng Li, MD, and Kimikazu Hamano, MD

Department of Surgery and Clinical Science, Division of Chest Surgery, Yamaguchi University Graduate School of Medicine, Yamaguchi, Japan

Background. Postoperative air leaks impede rehabilitation and prolong hospitalization after pulmonary resection. To promote rehabilitation after video-assisted major pulmonary resection, we attempted to control alveolar air leaks without suturing, using polyglycolic acid mesh as artificial pleura.

Methods. Forty-five patients undergoing video-assisted major pulmonary resection in our institute were enrolled in this study. Pneumostasis was done for intraoperative air leaks, by combining polyglycolic acid mesh with fibrin glue. We removed the chest tube the day after the air leaks stopped.

Results. Pneumostasis was done for intraoperative air leaks in 28 patients. The air leaks stopped immediately, allowing chest tube removal on postoperative day 1 in all but one patient whose air leak took 1 day longer to disappear. The time of chest tube drainage and the postoperative stay were similar in the patients with and those without intraoperative air leaks (mean 1.0 days vs 1.2 days and 6.8 days vs 7.1 days, respectively). The percentage of predicted forced expiratory volume in one second was significantly lower in patients with, than in those without, intraoperative air leaks ($p < 0.05$).

Conclusions. We achieved sutureless pneumostasis using bioabsorbable artificial pleura during video-assisted major pulmonary resection. This method may contribute to reducing hospitalization, especially in patients with poor pulmonary function.

(Ann Thorac Surg 2007;84:1858–61)

Colla di fibrina

Usi clinici:

Neurochirurgia

L'uso della colla di fibrina in neurochirurgia è di grande utilità per la difficoltà che pone l'eseguire suture in questa area chirurgica.

E' usata con ottimi risultati nel trattamento di brecce della dura madre con perdite di liquor e come sigillante nelle anastomosi vascolari intracraniche o nelle suture della dura madre dopo craniotomia *(Shaffrey CI et al, Neurosurgery, 1990).*

Colla di fibrina

Usi clinici: Neurochirurgia

Autore	Rivista	Intervento
Guo D et al	Neurosurgery, 2007	Cisti perineurali sacrali
Cavallo LM et al	J Neurosurg, 2007	Trattamento di lesione soprasellare per via endoscopica trans-sfenoidale
Sekhar LN et al Krayenbuhl N et al	Neurosurgery, 2007	Emostasi nello spazio epidurale e seno cavernoso ant.
Zhang T et al	J Neurosurg Spine, 2007	Cisti meningea
Germani RM	Am J Rhinol, 2007	Ricostruzione endoscopica del basicranio

Available online at www.sciencedirect.com
ScienceDirect
Surgical Neurology 72 (2009) S2:80–S2:85
SURGICAL NEUROLOGY
www.surgicalneurology-online.com

Spine

One-stage posterior resection is feasible for a holovertebral aneurysmal bone cyst of the axis: a case report and literature review

Li-Yu Fay, MD[a,c,d], Jau-Ching Wu, MD[a,b,c,e], Wen-Cheng Huang, MD[a,b,c], Yang-Hsin Shih, MD[a,c,d], Henrich Cheng, MD, PhD[a,b,c,e,*]

[a]*Department of Neurosurgery, Neurological Institute, Taipei Veterans General Hospital, Taipei, Taiwan, ROC*
[b]*Neural Regeneration Laboratory, Department of Neurosurgery, Neurological Institute, Taipei Veterans General Hospital Taipei, Taiwan, ROC*
[c]*School of Medicine, National Yang-Ming University, Taipei, Taiwan, ROC*
[d]*School of Medicine, Taipei Medical University, Taipei, Taiwan, ROC*
[e]*Institute of Pharmacology, National Yang-Ming University, Taipei, Taiwan, ROC*

Abstract

Background: For cervical spine ABC, staged surgery and the combination of both anterior and posterior approaches are usually necessary for lesions involving all 3 (anterior, middle, and posterior) columns of the spine (holovertebral).

Case Description: A 20-year-old young man presented with quadriplegia and acute urine retention lasting for 3 days in November 2006. The diagnosis of an ABC involving the C2 vertebral body, pedicles, laminae, and spinous process was made by MRI. One-stage surgery with intralesional injection of fibrin glue via the posterior approach only was able to deliver complete resection and spinal stabilization. His neurologic function recovered well, and he was able to walk independently 10 days postoperation. At the 1-year follow-up, image studies of the cervical spine demonstrated good bone fusion without recurrence of ABC. The C2 vertebral body also showed resolution of ABC and good trabeculation.

Conclusions: Intralesional injection of fibrin glue during the operation for holovertebral ABC can be beneficial to (1) avoid using an anterior approach for complete resection and reconstruction, which was usually required in previous reports, and (2) effectively decrease the blood loss during surgery.

Keywords: Aneurysmal bone cyst; Cervical spine; Holovertebral; Fibrin glue

Colla di fibrina

Usi clinici: chirurgia addominale

Autore	Rivista	Intervento
Santoro E et al	J Laparoendosc Adv Surg Tech A, 2007	Ernia inguinale (laparoscopia)
Tyler KM et al	Dis Colon Rectum, 2007	Fistole anali
Binenbaum SJ et al	JSLS, 2007	Ulcera gastrica perforata (laparoscopia)
Hayden JD et al	Dis Esophagus, 2007	Fistola post-esofagectomia
Olmi S et al	Surg Endosc, 2007	Trauma splenico
Figueras J et al Namir Katkhouda	Ann Surg, 2007 ☹ Ann Surg, 2008 ☺	Epatectomia
Lattouf JB et al	Minim Invasive Ther Allied Technol, 2007	Chirugia laparoscopica

Colla di fibrina

Usi clinici:

Chirurgia dell'ulcera gastrica

Studi hanno dimostrato l'efficacia dell'applicazione per via endoscopica della colla di fibrina per il trattamento dell'ulcera gastrica sanguinante.

In uno studio su 955 pazienti, in 716 casi è stato possibile arrestare l'emorragia dopo una singola applicazione di colla di fibrina ed in altri 239 pazienti dopo una seconda applicazione (*Friedrichs O, Dtsch Med Wochenschr, 1994*).

Un successivo studio ha dimostrato la maggior efficacia della applicazione di colla di fibrina nei confronti del trattamento con soluzioni sclerosante (*Rudgeerts P et al, Lancet, 1997*):

frequenza di recidive =	-33.3%
frequenza di fallimenti terapeutici =	-40.8%

Acute nonvariceal upper gastrointestinal bleeding

Philip W.Y. Chiu and Joseph J.Y. Sung

Department of Medicine and Therapeutics, Institute of Digestive Disease, The Chinese University of Hong Kong, Shatin, Hong Kong

Correspondence to Professor Joseph J.Y. Sung, Chairman and Professor of Medicine, Department of Medicine and Therapeutics, Institute of Digestive Disease, The Chinese University of Hong Kong, Prince of Wales Hospital, 30-32 Ngan Shing Street, Shatin, Hong Kong
Tel: +852 2632 3132; fax: +852 2645 1699; e-mail: joesung@cuhk.edu.hk

Current Opinion in Gastroenterology 2010, 26:425–428

Purpose of review

To review recent literature (2009–2010) on acute nonvariceal upper gastrointestinal hemorrhage.

Recent findings

There is a decreasing trend in the incidence and hospitalization for acute nonvariceal upper gastrointestinal hemorrhage worldwide, with significant improvement in rebleeding and mortality. One study showed that Glasgow–Blatchford score was superior to Rockall score in predicting the need of intervention or death. None of those categorized as low risk required any intervention. Another database research from United States demonstrated that those managed as outpatients upon clinician decision had 6.3% mortality. Recent meta-analysis demonstrated that epinephrine injection should be used in combination with one other modality for hemostasis in bleeding ulcers, whereas thermal, sclerosant, clips and thrombin/fibrin glue appeared to be effective alone. Despite meta-analysis showing that second look endoscopy with thermal therapy reduced rebleeding, international consensus from experts recommended proton pump inhibitor infusion as the preferred strategy to prevent ulcer rebleeding.

Colla di fibrina in chirurgia epatica

Le sezioni chirurgiche di organi parenchimatosi quali il fegato provocano lesioni di piccoli vasi sanguigni e biliari che risultano difficilmente isolabili e sigillabili con le comuni tecniche chirurgiche come le suture.

Il corretto trattamento di tali lesioni è tuttavia critico per prevenire complicanze intraperitoneali che possono essere favorite da perdite ematiche o biliari

Colla di fibrina in chirurgia epatica

Application of Fibrin Glue Sealant After Hepatectomy Does Not Seem Justified

Results of a Randomized Study in 300 Patients

Juan Figueras, MD, PhD, Laura Llado, MD, PhD,* Mónica Miro, MD,* Emilio Ramos, MD, PhD,* Jaume Torras, MD, PhD,* Juan Fabregat, MD, PhD,* and Teresa Serrano, MD, PhD†*

(*Ann Surg* 2007;245: 536–542)

Tissucol vs standard management (argon beamer or Tissuelink)

Results: Postoperatively, no differences were observed in the amount of transfusion (0.15 ± 0.66 vs. 0.17 ± 0.63 PRCU; $P = 0.7234$) or in the patients that required transfusion (18% vs. 12%; $P = 0.2$), respectively, for the fibrin glue or control group. There were no differences in overall drainage volumes (1180 ± 2528 vs. 960 ± 1253 mL) or in days of postoperative drainage (7.9 ± 5 vs. 7.1 ± 4.7). Incidence of biliary fistula was similar in the fibrin glue and control groups, (10% vs. 11%). There were no differences regarding postoperative morbidity between groups (23% vs. 23%; $P = 1$).

Application of Fibrin Glue After Hepatectomy Might Still Be Justified

To the Editor:

I read with interest the article entitled "The Application of Fibrin Glue Sealant After Hepatectomy Does Not Seem Justified. Results of a Randomized Study in 300 Patients" published by Figueras et al in the April 2007 issue of the *Annals of Surgery*.

The explanation for the lack of difference between the groups could reside in the surgical technique involving the use of fibrin glue (FG).

Instead of applying the FG on the raw surface of the liver, the authors used at the end of the resection, the argon beam coagulator and later in their experience the Tissue Link device. The argon beam coagulator delivers radiofrequency electrical energy across a jet of argon gas, providing noncontact, monopolar electrothermal hemostasis. The Tissuelink device delivers saline-enhanced radiofrequency energy, the saline acting as an electrode coupling the energy to the tissue. Both technologies are efficient and will achieve hemostasis of the liver by coagulating structural proteins. In our opinion, the FG does not work on a coagulated liver surface.

Katkhouda N, Ann Surg, 2008 Feb;247(2):399-400

Colla di fibrina

Esperienza Niguarda:Chirurgia Epatica

- **Tipo di studio**: osservazionale prospettico
- **Setting**: resezione epatica per neoplasia in situ
- **Obiettivo**: valutare l'efficacia emostatica della FG "home made" (CS-1 CryoSeal System, Thermogenesis) vs Tissucol.
- **Gruppi di Studio**: 14 pz FG "home made" vs 20 pz Tissucol

Risultati:

- 7 pz (35%) del gruppo Tissucol e 2 (14.3%) del gruppo FG "home made" (p NS) sono stati trasfusi con GRC.
- il volume di GRC trasfusi è stato = 500±141 mL nel gruppo "home made" e = 543±222 mL nel gruppo Tissucol (p NS).
- Hct in 5a giornata post-intervento: 32.8±3.8% (Tissucol) vs 35.0±4.1% (home made) ($p<0.05$).
- perdite ematiche perioperatorie (mL di GRC): 305.6±253.7 mL vs 527.9±251.6 mL, ($p<0.05$).

Conclusioni:

FG *home made* e del commercio hanno proprietà emostatiche quanto meno sovrapponibili.

Colla di fibrina

Usi clinici:

Chirurgia Ortopedica

E' impiegata per diversi scopi nella chirurgia ortopedica:

- Riempimento di cavità con frammenti ossei

  Weinard C et al, Ann Plast Surg, 2007

- Fissazione di frammenti osteocondrali
- Trapianto di cartilagine

  Malicev E et al, Biotechnol Bioeng, 2007

- Trattamento del distacco di tendini, come supporto a sutura convenzionale
- Riduzione delle perdite ematiche in chirurgia maggiore

  Kozek-Langenecker S, Minerva Anestesiol, 2007

Colla di fibrina

Usi clinici: Chirurgia Ortopedica Maggiore

Author	Surgery	Results
Tredwell et al 1990	39 Pts; Artrodesi vertebrale (Cotrel-Dubousset)	Perdite ematiche: FG 672mL; controls 895 mL, p<0.05.
Levy et al (1999)	58 Pts; studio random. controllato Protesi di ginocchio	Perdite ematiche: FG 360mL Contr 878mL p<0.001 Pazienti trasfusi FG 17% Contr 55% p<0.004
Mercuriali et al (1999)	20 Pts; studio random. controllato Protesi d'anca FG=autologa	Perdite ematiche: FG 640mL Contr 904mL p<0.001 N° unità allogeniche trasfuse FG 0.2/pt Contr 0.66 p<ns)

THE JOURNAL OF BONE & JOINT SURGERY
JB&JS

Use of Fibrin Sealant to Reduce Bloody Drainage and Hemoglobin Loss After Total Knee Arthroplasty : A Brief Note on a Randomized Prospective Trial

G. J. Wang, D. S. Hungerford, C. G. Savory, A. G. Rosenberg, M. A. Mont, S. G. Burks, S. L. Mayers and W. D. Spotnitz

J Bone Joint Surg Am. 2001;83:1503-1505.

Following cementing of the joint, 10 mL of fibrin sealant was sprayed onto the wound before tourniquet deflation and wound closure.

	Fibrin glue (n=25)	Controls (n=28)	p
Amount of drainage after 12 h (mL)	184.5 + 28.9	408.3 + 54.6	0.002
Hb decrease after 1 d (g/L)	20.1 + 2.1	27.3 + 2.1	0.005

Colla di Fibrina in chirurgia ortopedica

Comparison of topical fibrin spray and tranexamic acid on blood loss after total knee replacement

A PROSPECTIVE, RANDOMISED CONTROLLED TRIAL

*Molloy DO et al. J Bone Joint Surg [Br]*2007;89:306-9.

We performed a randomised, controlled trial involving 150 patients with a pre-operative level of haemoglobin of 13.0 g/dl or less, to compare the effect of either topical fibrin spray or intravenous tranexamic acid on blood loss after total knee replacement.

A total of 50 patients in the topical fibrin spray group had 10 ml of the reconstituted product applied intra-operatively to the operation site. The 50 patients in the tranexamic acid group received 500 mg of tranexamic acid intravenously five minutes before deflation of the tourniquet and a repeat dose three hours later, and a control group of 50 patients received no pharmacological intervention.

There was a significant reduction in the total calculated blood loss for those in the topical fibrin spray group ($p = 0.016$) and tranexamic acid group ($p = 0.041$) compared with the control group, with mean losses of 1190 ml (708 to 2067), 1225 ml (580 to 2027), and 1415 ml (801 to 2319), respectively. The reduction in blood loss in the topical fibrin spray group was not significantly different from that achieved in the tranexamic acid group ($p = 0.72$).

Knee Surg Sports Traumatol Arthrosc (2007) 15:888–894
DOI 10.1007/s00167-007-0296-x

KNEE

Autologous platelet gel and fibrin sealant enhance the efficacy of total knee arthroplasty: improved range of motion, decreased length of stay and a reduced incidence of arthrofibrosis

Peter A. M. Everts · Roger J. J. Devilee · Cornelis J. M. Oosterbos · Christine Brown Mahoney · Maarten Eeftinck Schattenkerk · Johannes T. A. Knape · André van Zundert

Table 1 Patient characteristics and type of knee prosthesis used

Description	Treatment group (n = 85)	Control group (n = 80)
Age (years)	69.4 ± 9.1	67.4 ± 9.9
Gender (F/M)	58/27	58/22
% Cemented	74	73
Pre-op hemoglobin (g/dl)	13.6 ± 1.1	13.7 ± 1.1
Post-op EC-T (Units)	0.17 ± 0.6	0.52 ± 0.9*
Discharge hemoglobin (g/dl)	10.9 ± 1.0	10.5 ± 1.1

The pre-operative hemoglobin value was also comparable in both groups (Table 1). Postoperative hemoglobin values of patients receiving PG and fibrin sealant dropped significantly less in the study group ($P < 0.001$) when compared to the control patients (2.5 vs. 5.2 g/dl, respectively).

None of the patients underwent TKA for rheumatoid arthritis. In Table 2 the incidence of arthrofibrosis, up to 5 months after surgery is shown. The preoperative active flexion was not statistical different for both patient groups. The criterion for arthrofibrosis was met in all patients (flexion 70° and 79° for treated and control patients, respectively). Arthrofibrosis occurred only patients who received a cemented prosthesis. This complication arised only in two patients in whom PG and fibrin sealants were applied, whereas eighth control patients developed arthrofibrosis ($P < 0.001$)

The improved range of motion and reduced bleeding contributed to a shorter hospitalization time in treated patients (6.9 ± 1.4 days) compared to the control group (8.3 ± 2.9 days) ($P < 0.001$)

Colla di fibrina

Usi clinici: chirurgia ORL

Autore	Rivista	Intervento
Sakagami M et al	J Laryngol Otol, 2007	Miringoplastica
Yano S et al	Surg Neur, 2007	Chirurgia endoscopica endonasale trans-sfenoidale
Segal N et al	International Journal of Pediatric Otorhinolaryngology, 2007	Tonsillectomia (riduzione di sanguinamento e dolore post-operatorio)

Colla di fibrina

Usi clinici: chirurgia urologica

Autore	Rivista	Intervento
Ambriz-Gonzalez G et al	Urol Int, 2007	Ipospadia
Dolay K et al	J Endourol, 2007	Fistole iatrogene retrouretrali
Porpiglia F et al	J Endourol, 2007	Nefrectomia (laparoscopia)

Tissue glues and nonsuturing techniques

Nathan F. Pursifull[a] and Allen F. Morey[b]

Purpose of review

This article details the diverse urologic applications of tissue glues and hemostatic agents over the past 3 years in the management of genitourinary injuries, surgical wounds, and complications.

Recent findings

Biosurgical agents designed to promote tissue adhesion and hemostasis are being increasingly employed across all surgical disciplines. Fibrin sealant is the most widely utilized biosurgical product. Gelatin matrix thrombin has proven to be an efficacious hemostatic agent. Bovine serum albumin-gluataraldehyde is a new, promising tissue glue. Complex reconstructive, oncologic and laparoscopic procedures are those most appropriate for sealant use in urology.

Summary

Tissue glues and hemostatic agents are effective, safe, and their use is increasing. All urologists should have a working knowledge of these adjuncts.

Keywords

hemostasis, tissue adhesives, urology

Curr Opin Urol 17:396–401.

Table 1 Common urological applications of tissue glues

Hemostasis
Partial nephrectomy
Open
Laparoscopic percutaneous nephrolithotomy
Renal injury
Splenic injury
Hemophilia and other coagulopathy
Circumcision
Hemorrhagic cystitis
Buccal mucosa graft harvest
Urinary tract sealant
Laparoscopic and open pyeloplasty
Ureteral anastomosis
Urethral reconstruction
Simple retropubic prostatectomy
Radical retropubic prostatectomy
Bladder injury
Lymphadenectomy
Percutaneous nephrolithotomy tract closure
Fistula closure
Tissue adhesion
Fournier's gangrene reconstruction
Genital skin grafting
Complex urethroplasty
Reconstructive surgery after penectomy
Lymphocele sclerosis

Fibrin glue for refractory hemorrhagic cystitis after unrelated marrow, cord blood, and haploidentical hematopoietic stem cell transplantation

Maria Cristina Tirindelli, Gerardo Flammia, Federico Sergi, Raffaella Cerretti, Laura Cudillo, Alessandra Picardi, Massimiliano Postorino, Ombretta Annibali, Rosa Greco, Giuseppe Avvisati, and William Arcese for the Rome Transplant Network

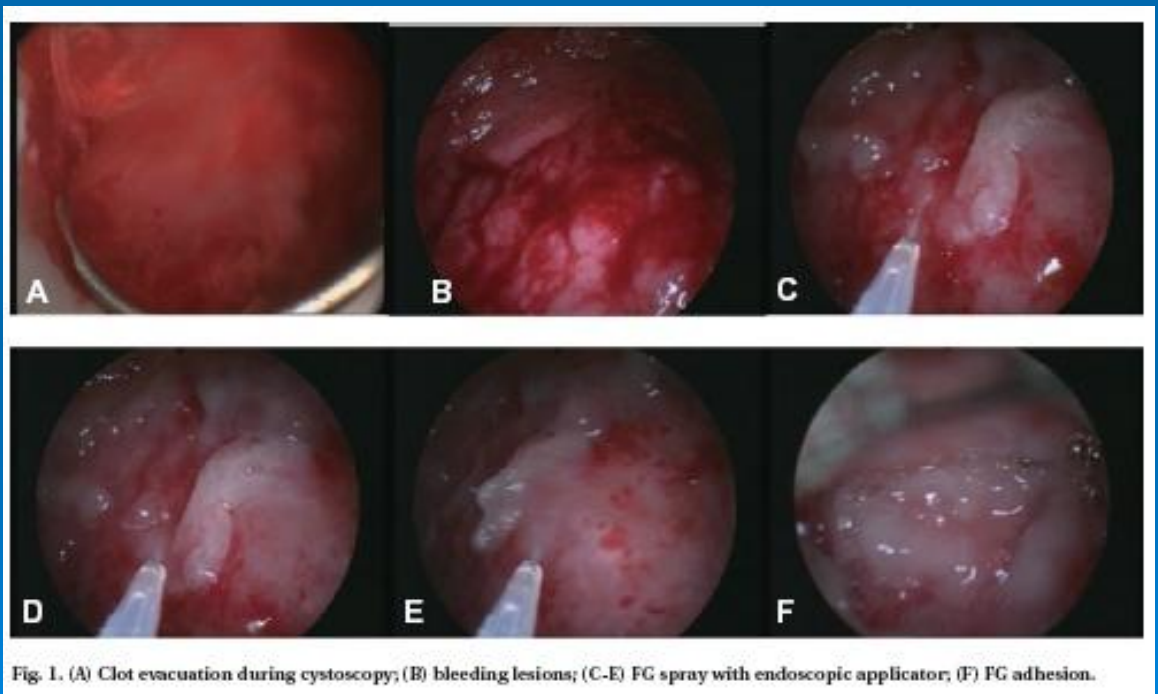

Fig. 1. (A) Clot evacuation during cystoscopy; (B) bleeding lesions; (C-E) FG spray with endoscopic applicator; (F) FG adhesion.

BACKGROUND: Patients undergoing hematopoietic stem cell transplant (HSCT) are particularly exposed to the risk of developing hemorrhagic cystitis (HC), which is characterized by symptoms ranging from macroscopic hematuria to renal failure. Although HC significantly affects the quality of life and in a few cases becomes intractable leading to patient death, its therapeutic management has not been established. Fibrin glue (FG), a hemostatic agent derived from human plasma, has been largely employed in different surgical settings including urologic procedures.

STUDY DESIGN AND METHODS: In this pilot study we used FG to treat refractory HC. During cystoscopy, bladder distension was maintained at a constant pressure of 12 mmHg by a carbon dioxide insufflator. An endoscopic applicator allowed spraying FG on the bleeding and raw surfaces of bladder mucosa.

RESULTS: Five of 221 patients undergoing an HSCT developed a very severe, refractory HC and have been treated with endoscopic FG. The treatment was successful in 3 patients; the response was partial in 1 patient and transient in the last one, whose clinical course was severely complicated by acute graft-versus-host disease and multiple organ failure.

CONCLUSIONS: FG therapy is a feasible procedure and this pilot study suggests that it may be an effective treatment for refractory HC. Its application could be considered also in Grade 1 or 2 HC to prevent progression of damaged mucosa. The use of FG for HC should be prospectively investigated in terms of therapeutic efficacy, transfusion support, length of hospitalization, quality of life, and costs.

TRANSFUSION 2009; 49:170-75

Colla di fibrina

Usi clinici: chirurgia oculistica

Autore	Rivista	Intervento
Narendran N et al	Cont Lens Anterior Eye, 2007	Cheratoplastica
Sekiyama E et al	Invest Ophtalmol Vis Sci, 2007	Ricostruzione superficie oculare
Bahar I, et al	Curr Eye Res, 2007	Pterigio
Kheirkhah A et al Kheirkhah A et al	Cornea, 2007 Am J Ophtlamol, 2007	Congiuntivocalasi
Duarte MC et al	Cornea, 2007	Cheratoplastica
Mentens R et al	Am J Ophtlamol, 2007	Vitrectomia

Colla di fibrina

Usi clinici: chirurgia ostetrica e neonatale

Autore	Rivista	Intervento
Calado E et al	Fetal Diagn Ther, 2007	Applicazione transcervicale di FG per prematura rottura del sacco amniotico
Mallik AS et al	Obstet Gynecol, 2007	Riparazione del sacco amniotico (modello animale)
Akcakus M et al	Neonatology, 2007	Linfangectasia

Colla di fibrina

THE COCHRANE COLLABORATION®

Fibrin sealant use for minimising peri-operative allogeneic blood transfusion (Review)

Published in The Cochrane Library 2009, Issue 3

Carless PA, Henry DA, Anthony DM

RCT conducted in:

- orthopaedic surgery (n = 7),
- liver surgery (n = 5),
- vascular surgery (n = 4),
- prostate surgery (n = 3),
- thoracic surgery (n = 3),
- renal surgery (n = 1),
- pancreatic surgery (n = 1),
- cardiac surgery (n = 1),
- Plastic surgery (incisional hernia repair with dermolipectomy) (n = 1).

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- FS treatment, on average, **reduced the rate of exposure to allogenic RBC Tx by a relative 37%** (18 studies - 1406 pts).
- In aggregate, **FS reduced perioperative blood loss on average by around 161 ml per pt** (14 studies – 853 pts) .
- In Orthopaedic surgery, FS **reduced post-operative blood loss on average by around 223 ml per pt and reduced the risk of exposure to RBC Tx by 32%** (7 studies – 482 pts).
- FS treatment was not associated with an increased risk of wound infection, any infection, haematoma formation, or death.
- Hospital length of stay was not reduced in patients treated with FS.

THE COCHRANE COLLABORATION®

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Carless PA, Henry DA, Anthony DM

- As an adjunct to surgical sutures, FS appear to have a place in reducing operative blood loss; however, firm clinical evidence to support this premise is lacking.
- To determine more accurately the impact that FS have on perioperative blood loss and allogeneic red blood cell (RBC) transfusion, and to provide more definitive evidence, future trials should be performed using well-defined transfusion guidelines and collect data on clinically important endpoints.

TAKE HOME MESSAGES

LA FG PRESENTA:

- OTTIMO PROFILO DI SAFETY
- COSTI ELEVATI: VALUTARE COSTO/EFFICACIA
- POSSIBILITA' DI ESSERE PRODOTTA "HOME-MADE": DEFINIRE STANDARD DI PROCESSO E DI PRODOTTO
- APPROPRIATEZZA CHE DEVE ESSERE ULTERIORMENTE CONSOLIDATA DA TRIAL CLINICI:
  - PROSPETTICI RANDOMIZZATI CON CASISTICA DI ADEGUATA POTENZA STATISTICA;
  - CORRETTI ED OMOGENEI *TRIGGER* TRASFUSIONALI;
  - *END-POINT* CHIARAMENTE DEFINITI;
  - OMOGENEI PER APPROCCIO CHIRURGICO, TEMPO OPERATORIO E MODALITA' DI APPLICAZIONE DELLA FG.