

# Case example: Use of TachoSil® for sufficient hemostasis and sealing during liver fragment transplantation in a 4-year-old patient

Preparation of segment II + III harvested from living related donor.



1: Stepwise application of 1<sup>st</sup> TachoSil® (4,8 x 4,8 cm) to seal the resection surface of the liver.



4: Gentle compression of > 3 minutes on 2<sup>nd</sup> TachoSil® patch.



5: Complete hemostasis after application of 3<sup>rd</sup> TachoSil® (Midi) along the resection surface of the liver.

### Preliminary remarks:

- Autosomal recessive polycystic kidney disease (ARPKD) is a rare genetic disorder (mutations in PKHD1) primarily affecting the kidneys and liver!<sup>1</sup>
- ARPKD causes renal cysts and congenital hepatic fibrosis.<sup>1</sup>
- Renal distal tubule and collecting duct cyst formation results in renal failure.<sup>1</sup>
- Congenital hepatic fibrosis can lead to portal hypertension, splenomegaly, thrombocytopenia, and esophageal varices.<sup>1</sup>
- Organ transplants (liver and kidney) have shown promising results in a significant number of cases, depending on the severity of portal hypertension and end-stage renal disease.<sup>1</sup>
- TachoSil® can be used in transplantations – if necessary – for supportive treatment to improve hemostasis and to promote tissue sealing.<sup>2</sup>

### Patient history:

- 4-year-old boy with chronic liver and kidney failure due to ARPKD (polycystic kidney disease and hepatic fibrosis), Caroli disease\*.
- Repeated hemodialysis.
- Planning of a combined liver and kidney transplant.
- However, due to decompensated liver function, an urgent partial liver transplant from a living related donor was performed ahead of schedule.

\* Caroli disease: a rare, congenital disease characterized by segmental dilation of large, intrahepatic bile ducts. It belongs to a group of congenital disorders known as fibropolycystic liver diseases, which originate from ductal plate malformations during embryological development and are associated with various liver cysts.

Sources: 1. Subramanian S et al. Autosomal Recessive Polycystic Kidney Disease. StatPearls Publishing LLC 2024. Bookshelf ID: NBK537137 PMID: 30725822. <https://www.ncbi.nlm.nih.gov/books/NBK537137/>, last accessed in December 2024. 2. SmPc TachoSil®.

Reference: According to information and estimates from Professor Piotr Kaliciński, Department of Pediatric Surgery & Organ Transplantation, Children's Memorial Health Institute Warsaw, Poland.

## Case example:

**Use of TachoSil<sup>®</sup> for sufficient hemostasis and sealing during liver fragment transplantation in a 4-year-old patient. Preparation of segment II + III harvested from living related donor.**

### Surgical procedure:

- Standard piggyback liver transplantation with segment II+III harvested from living related donor.
- Due to an increased risk of bleeding because of liver failure and thrombocytopenia application of 3 TachoSil<sup>®</sup> patches (4,8 x 4,8 cm) along the cut surface of the liver for a sufficient hemostasis and sealing.

### Conclusion:

- The time until hemostasis was reduced by approximately 10 minutes by using TachoSil<sup>®</sup>.
- By using TachoSil<sup>®</sup>, the surgical time could be reduced by approximately 10 – 15 minutes in this child.
- The time a drain remains in place has also been reduced, from one to three days.
- Blood reserves could be saved by approximately 50 – 100 ml when using TachoSil<sup>®</sup>.

**Reference:** According to information and estimates from Professor Piotr Kaliciński, Department of Pediatric Surgery & Organ Transplantation, Children's Memorial Health Institute Warsaw, Poland.

### TachoSil Sealant Matrix (5.5 mg per cm<sup>2</sup> of human fibrinogen, 2.0 IU per cm<sup>2</sup> of human thrombin)

**Statement:** Before prescribing, consult/refer to the full prescribing information.  
**Presentation:** An off-white sealant matrix. The active side of the matrix is coated with fibrinogen and thrombin, is marked by a yellow colour. Supplied, ready to use, in sterile packaging. **Legal Classification:** Restricted prescription only medicine.  
**Indications:** In adults and children from 1 month old, for supportive treatment in surgery for improvement of haemostasis, to promote tissue sealing, and for suture support in vascular surgery where standard techniques are insufficient; also, in adults for supportive sealing of the dura mater to prevent postoperative cerebrospinal leakage following neurosurgical procedures. **Dosage & Administration:** For epilesional use only. Use is restricted to experienced surgeons. The quantity to be applied is governed by the size of wound area, and the underlying clinical need for the patient. In clinical studies, the individual dosages have typically ranged from 1-3 units (9.5 cm x 4.8 cm); application of up to 10 units has been reported. For smaller wounds, the smaller size matrices (4.8 cm x 4.8 cm or 3.0 cm x 2.5 cm) or the pre-rolled matrix (based on a matrix of 4.8 cm x 4.8 cm) is recommended. TachoSil should be used under sterile conditions and immediately after opening the inner sterile cover. Prior to application, the wound area should be cleansed, e.g. from blood, disinfectants and other fluids. For Flat TachoSil, the sterile package should be pre-moistened in saline solution and applied immediately. The yellow, active side of the matrix is applied to the bleeding/leaking surface and held against it with a gentle pressure for 3-5 minutes. For pre-rolled TachoSil, after removing from the sterile package, it should be applied immediately through the trocar without pre-moistening. The yellow, active side of the matrix is applied to the bleeding/leaking surface using e.g., a pair of cleansed forceps and held against it with a moist pad under gentle pressure for 3-5 minutes. Pressure is applied with moistened gloves or a moist pad. Avoid TachoSil sticking to surgical instruments, gloves or adjacent tissues covered with blood by cleansing them before application. After pressing TachoSil to the wound, the glove or the pad must be removed carefully. To avoid TachoSil from being pulled loose it may be held in place at one end, e.g. with a pair of forceps. In the case of stronger bleeding, it may be applied without pre-moistening, while also pressing gently to the wound for 3-5 minutes. The active side of TachoSil should be applied so that it extends 1-2 cm beyond the margins of the wound. If more than one matrix is used, they should overlap. TachoSil can be cut to the correct size and shaped if too large. In neurosurgery, TachoSil should be applied on top of the primary dura closure. **Contraindications:** Intravascular use; hypersensitivity to the active substances or to any of the excipients. **Warnings & Precautions:** No specific data available on the use of this product in gastrointestinal anastomoses surgery. Life threatening thromboembolic complications may occur if the preparation is applied intravascularly. Allergic type hypersensitivity reactions are possible, as with any protein product. If hypersensitivity reactions occur, the administration must be discontinued immediately. To prevent the development of tissue adhesions at undesired sites, ensure tissue areas outside the desired application area are adequately cleansed before administration. In the case

of shock, the current medical standards for shock treatment should be followed. Standard measures to prevent infections resulting from the use of medicinal products prepared from human blood or plasma include selection of donors, screening of individual donations and plasma pools for specific markers of infection and the inclusion of effective manufacturing steps for the inactivation/removal of viruses. Measures taken are considered effective for enveloped viruses such as HIV, HBV and HCV and for the non-enveloped virus HAV. Measures may be of limited value against non-enveloped viruses such as parvovirus B19. Parvovirus B19 infection may be serious for pregnant women (foetal infection) and for individuals with immunodeficiency or increased erythropoiesis (e.g., haemolytic anaemia). It is recommended to record the name and the batch number of the product administered to the patient. Some cases of product non-adhesion issues have been reported in the form of lack of product adhesion / lack of efficacy. Correct product handling and application is required. **Interactions:** No interaction studies have been performed. Similar to comparable products or thrombin solutions, the sealant may be denatured after exposure to solutions containing alcohol, iodine, or heavy metals. Such substances should be removed to the greatest possible extent before applying the sealant. **Fertility, Pregnancy & Lactation:** Safety for use in human pregnancy or breastfeeding has not been established in the clinical studies. Only administer to pregnant and breastfeeding women if clearly needed. **Effects on Ability to Drive and Use Machines:** Not relevant. **Undesirable Effects:** Hypersensitivity or allergic reactions (in isolated cases these reactions may progress to severe anaphylaxis; some cases of product residue causing granuloma), thromboembolic complications may occur if used intravascularly, and adhesions and intestinal obstruction when used in abdominal surgery. Refer to the SmPC for details on full side effect profile and interactions. **Overdose information:** No case of overdose has been reported. **Interactions with Other Medicinal Products:** No interaction studies have been performed. Similar to comparable products or thrombin solutions, the sealant may be denatured after exposure to solutions containing alcohol, iodine or heavy metals (e.g., antiseptic solutions). Such substances should be removed to the greatest possible extent before applying the sealant. **Use in Special Populations:** Limited data are available to support efficacy and safety of TachoSil in the paediatric population. In clinical studies, a total of 36 paediatric patients aged 0-13 years were treated with TachoSil in hepatic surgery. **Pack Sizes:** Package with 1 matrix of 9.5 cm x 4.8 cm, Package with 2 matrices of 4.8 cm x 4.8 cm, Package with 1 matrix of 3.0 cm x 2.5 cm, Package with 5 matrices of 3.0 cm x 2.5 cm, Package with 1 pre-rolled matrix of 4.8 cm x 4.8 cm. Not all pack sizes may be marketed.

**Marketing Authorisation Holder:** Corza Medical GmbH, Speditionstraße 21, 40221 Düsseldorf, Germany  
The full SmPC can be obtained from Corza Medical GmbH.  
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