

# drainova® ArgentiC

The indwelling catheter with microsilver

ewimed

- + Antimicrobial effect of the microsilver reduces the risk of infection



Patent pending

**Safe drainage of malignant and non-malignant  
pleural effusion and ascites**



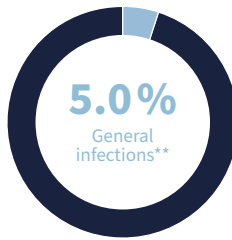
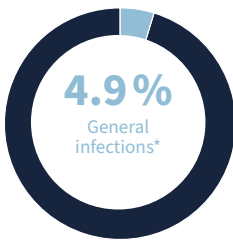
## Facts



Infections are one of the most common complications of using conventional indwelling catheters.

### Pleural effusion

Malignant pleural effusion    Non-malignant pleural effusion



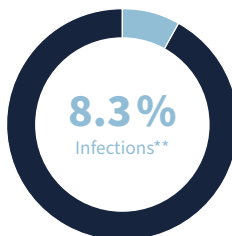
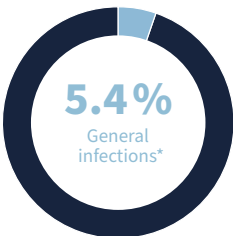
\*Source: Fysh et al; Chest 2013

\*\*Source: Patil et al; Chest 2017

### Ascites

Malignant ascites

Non-malignant ascites



Source: Caldwell et al; Baylor University Medical Center Proceedings 2018

\*Source: Solbach et al; Journal of Gastroenterology & Hepatology 2017

## Antimicrobial effect of microsilver

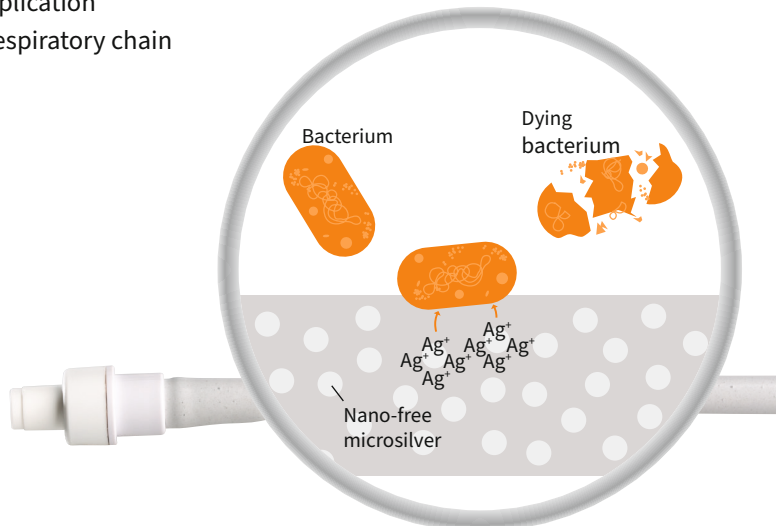
The medicinal use of silver has a long history. Today, microsilver is used to protect implants against bacteria and fungi in the following areas of medicine, among others:

- Wound treatment
- Endoprosthetics
- Ophthalmology
- Catheters

The ArgentiC catheter is made from biocompatible silicone with integrated microsilver. The silver ions have an antimicrobial effect on the catheter surface and reduce the risk of infection without having a systemic effect.

### Effect of silver ions on microorganisms (oligodynamic effect)

- Damage to the cell membrane
- Blocking of DNA replication
- Disrupting of the respiratory chain





**Bevelled drainage holes**  
To prevent occlusions

**Catheter**

Made from biocompatible silicone with integrated microsilver for biofilm reduction

# The **drainova**<sup>®</sup> **ArgentisC** catheter

**Polyester cuff**

Grows into the subcutaneous tissue and provides a barrier to infection

Integrated **barium sulfate strip** serves as X-ray contrast

**Safety valve**

High patient safety thanks to the lock and key principle, which prevents air from entering and unwanted leaking of effusion



The tunnelled catheter enables repeated drainage in patients with recurrent pleural effusions or ascites in inpatient and home settings.

## Indication

- Malignant pleural effusion
- Non-malignant pleural effusion
- Malignant ascites
- Non-malignant ascites

## Advantages

- Fast and efficient relief of symptoms
- Infection reduction
- High rate of spontaneous pleurodesis
- Few episodes of spontaneous bacterial peritonitis (SPB)
- Reduction in hospital stays and readmissions
- Lower costs for the healthcare system

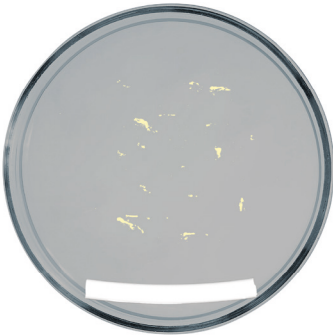




## In vitro test results

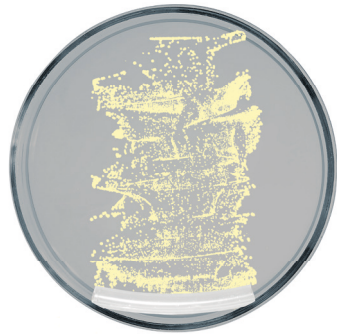
### Rollout Test

Tested microbe: Staphylococcus aureus tested in an independent certified laboratory



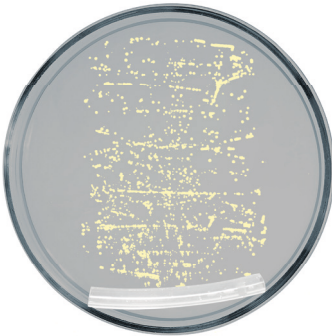
**drainova® ArgentiC catheter**

– with micro-silver –



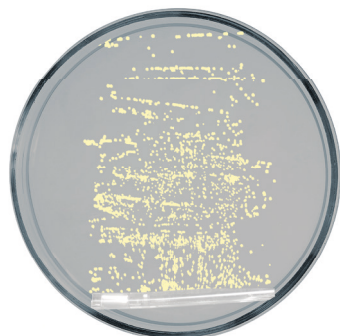
**Conventional catheter 1**

– silver-free –



**Conventional catheter 2**

– silver-free –



**Conventional catheter 3**

– silver-free –



## Microbe reduction drainova® ArgentiC catheter

Tested in an independent certified laboratory

### Fungi

**99.9%**

**Candida albicans**  
**Cryptococcus neoformans**

### Gram negative

**99.9%**

**E. coli**  
**Klebsiella pneumoniae**  
**Pseudomonas aeruginosa**

### Gram positive

**99.9%**

**Staphylococcus epidermidis**  
**Corynebacterium striatum**

**99.7%**

**Staphylococcus aureus (MRSA)**



# Clinical results:

ArgentiC vs. non-silver-containing tunnelled catheters

Dept. of Gastroenterology, Hepatology, Infectious Diseases & Endocrinology  
- Clinical Research and Biomedicine -

**EASL CONGRESS**  
19-23 OCT 2024

**MHH**  
Hannover Medical School

### Silver-coating of tunnelled peritoneal drainage system is associated with a lower incidence of peritonitis and device explantation

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**Background**  
Peritoneal dialysis (PD) is a serious complication in end-stage liver disease with only limited treatment options. If TPEP explantation or LT is not available, tunnelled peritoneal catheters (TPC) have been introduced to enable home-based therapy of RIL. In this setting, device infections or infection-related explantations are major complications. Here, silver-coated TPCs (sTPCs) that show antimicrobial properties in in-vitro studies have been introduced.

**Aim**  
To compare conventional TPCs with sTPCs regarding incidence of explantation and SSP.

**Methods & Results**  
177 patients with TPCs were included in this study. A 1:1 ratio of 1:1 (TPC) versus sTPCs was applied to adjust for potential group differences. The endpoints (monthly incidence of SSP and device explantation within one year) were analyzed utilizing a competing risk analysis with death and LT as competing events.

**Results:**

**Figure 2: Competing Risk Analysis**

- One year LT-free survival was comparable.
- Presence of sTPCs was associated with lower incidences of SSP and explantation.
- Device infections were the most frequent reason for explantation in TPCs.

**Conclusion**  
Compared to conventional untreated TPCs, sTPCs were associated with a lower SSP incidence and less device explantations within one year.

**Table 1: Baseline characteristics after 1:1 PSM**

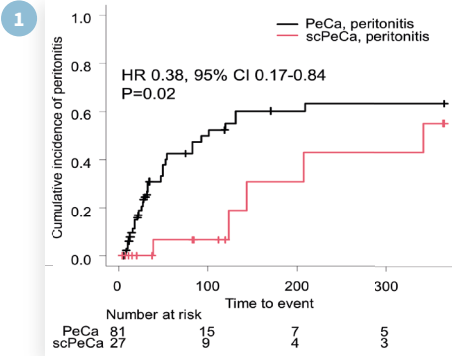
Characteristic	Patients in TPC	Conventional TPC	sTPCs	P-Value
Male gender, n (%)	166 (74.0)	166 (74.0)	166 (74.0)	0.998
Age, mean (SD), y	57 (17)	57 (17)	57 (17)	0.998
Median MELD score 2, n (%)	21 (10)	21 (10)	21 (10)	0.998
TPCs, mean (SD)	19 (2)	19 (2)	19 (2)	0.998
Explantation, mean (SD)	1.07 (0.03)	1.07 (0.03)	1.07 (0.03)	0.998
SSP, mean (SD), right	1.08 (0.03)	1.08 (0.03)	1.08 (0.03)	0.998
SSP, mean (SD)	1.08 (0.03)	1.08 (0.03)	1.08 (0.03)	0.998
Survival, mean (SD)	0.76 (0.03)	0.76 (0.03)	0.76 (0.03)	0.998
LT-free				
LT-free, mean (SD), y	36 (1)	36 (1)	36 (1)	0.998
LT-free, n (%)	17 (8)	17 (8)	17 (8)	0.998
LT-free, n (%)	17 (8)	17 (8)	17 (8)	0.998
LT-free, n (%)	17 (8)	17 (8)	17 (8)	0.998

Presented EASL Congress 2024 Milan, Italy

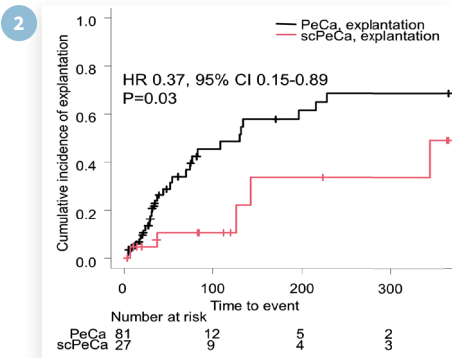


Scan the QR code to see the abstract in the journal „Journal of Hepatology“ published on 01/06/2024 (page 220) or at: [https://www.easlcongress.eu/wp-content/uploads/2024/06/Updated-1-EASL\\_2024\\_Abstract\\_version2-1-1.pdf](https://www.easlcongress.eu/wp-content/uploads/2024/06/Updated-1-EASL_2024_Abstract_version2-1-1.pdf)

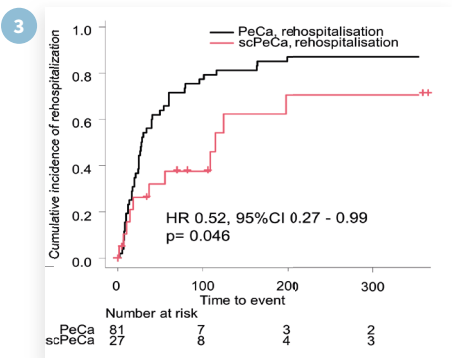




**Significantly fewer episodes of spontaneous bacterial peritonitis (SBP) within one year following implantation**



**Significantly fewer explantations of the catheter within one year following implantation**



**Significantly fewer hospital readmissions within one year following implantation**



## Product information

### drainova® ArgentiC catheter

<b>Material</b>	Biocompatible silicone with integrated micro-silver	
<b>Connection</b>	Safety valve (“lock and key principle” in accordance with DIN EN ISO 80369-1)	
<b>Features</b>	Length 66 cm 26 drainage holes	Diameter 15.5 Fr Polyester sleeve
<b>Scope of delivery</b>	The drainova® ArgentiC is part of the drainova® ArgentiC catheter kit. The drainova® ArgentiC catheter kit is available in 3 versions.	

- For implantation in malignant and non-malignant pleural effusion and ascites
- Disposable medical device
- Compatible with drainova®, ewimed and PleurX™ drainage systems for clinical and home use
- DEHP and latex-free



## Set variants

The drainova® ArgentiC catheter kit is available in the following 3 versions. Please contact us for further information.

	Quantity	Set variant			
		compact Art. no. 1240	classic Art. no. 1250	plus Art. no. 1260	
Implantation components	drainova® ArgentiC catheter (15.5 Fr, total length 66 cm)	1	●	●	●
	drainova® tunneler	1	●	●	●
	Introducer 16 Fr (16 Fr, length 14 cm)	1	—	●	●
	Syringe 10 ml	1	—	●	●
	Guide wire with J-tip (diameter 0.038" (0.96 mm), length 70 cm)	1	—	●	●
	Surgical drape (70×70 cm)	1	—	●	●
	Perforated surgical drape (100×92 cm, hole 8×15 cm)	1	—	—	●
	Surgical scissors	1	—	—	●
	Mayo-Hegar needle holder	1	—	—	●
	Chiraflon needle and thread (HR27 thread USP2/0, length 75 cm)	2	—	—	●
	Scalpel no. 11P	1	—	●	●
	Puncture cannula 18 G	1	—	●	●
	Additional material	drainova® Irrigation Tube	1	●	●
drainova® cone adapter		1	●	●	●
drainova® clickFix		1	●	●	●
Dressing material	Gauze compress	4	—	●	●
	Foam slit compress	1	●	●	●
	Self-adhesive film dressing	1	—	●	●
	drainova® silicone cap, sterile	1	●	●	●



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