

## CASE STUDY

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# Thrombolysis of the main portal vein with EKOS

## Patient History

A 16-year-old male presented with severe epigastric pain to the emergency department

- Abdominal CT demonstrated complete thrombosis of the portal veins (PV), as well as of the splenic (SV) and superior mesenteric (SMV) veins
- Patient was started on pain control and a heparin drip, and was admitted
- A hypercoagulable work-up was instituted, and interventional radiology (IR) was consulted

## Initial Endovascular Treatment

- Heparin drip was held, and patient was brought to IR
- Percutaneous trans-hepatic access was obtained with US guidance into the right PV, and a vascular sheath was placed. A catheter was manipulated into a patent middle colic vein; venogram confirmed SMV & PV thrombosis
- 3000 units of heparin were administered intravenously and mechanical thrombectomy was performed with Angiojet (Possis) from peripheral to central several times
- EKOS (18 cm treatment length) device was placed across the SMV and main PV
- The right common femoral artery was entered, and a diagnostic catheter placed with its tip in the superior mesenteric artery (SMA)
- 1mg/hour tPA and 300 units/hour heparin infusions were begun in even split doses via EKOS and diagnostic catheters

## Results

Patient brought back 21 hours after EKOS was placed:

- Recanalization of superior SMV and PV, but with residual scattered non-occlusive thrombus
- Balloon angioplasty was performed of the SMV and main PV
- EKOS device was repositioned into the SV, which remained thrombosed
- tPA and heparin infusions were continued overnight at the same doses/rates as previous
- Patient continued treatment with EKOS overnight

Follow-up at 41 hours after EKOS was placed:

- Patient had hematuria overnight not requiring transfusion
- Completion angiograms demonstrated approximately 90% reduction in clot burden in the portomesenteric veins, with robust hepatopetal flow
- The trans-hepatic sheath was removed and hemostasis achieved by tract embolization, and hemostasis was achieved at the groin puncture site with a percutaneous closure device placement.

## Conclusion

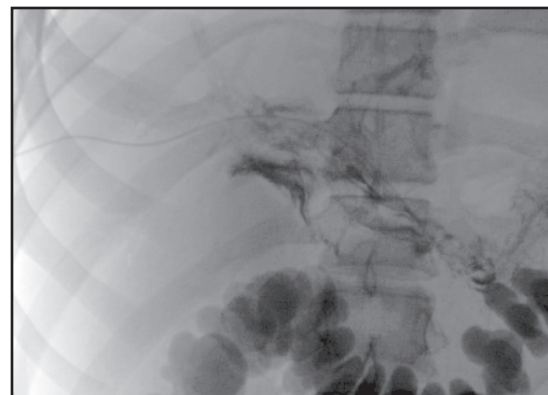
- Lovenox therapy was begun. His hematuria and pain resolved shortly thereafter
- Right upper quadrant Doppler ultrasound 4 days after completion of thrombolysis showed normal waveforms and widely patent hepatic, portal, and splenic vasculature
- Patient was discharged home later that day tolerating a normal diet and without pain

“EKOS was an integral component in the efficient and thorough treatment of challenging extensive portomesenteric thrombus with prompt restoration of normal antegrade flow.” – Jason Smith, MD

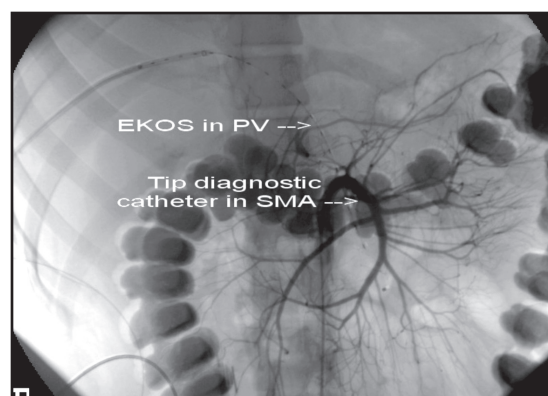
## EKOS

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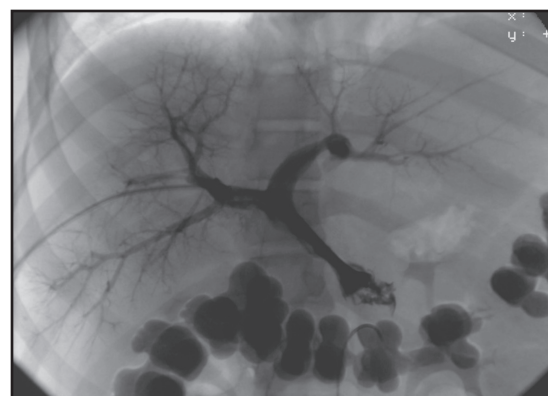
**Intended Use** The EKOS® EndoWave® Infusion Catheter System is intended for controlled and selective infusion of physician-specified fluids, including thrombolytics, in the peripheral vasculature. **Contraindications** \* Not designed for peripheral vasculature dilation purposes. \* This system is contraindicated when, in the medical judgment of the physician, such procedure may compromise the patient's condition. © 2009 EKOS Corporation • CE0197 • 21219-EN-001



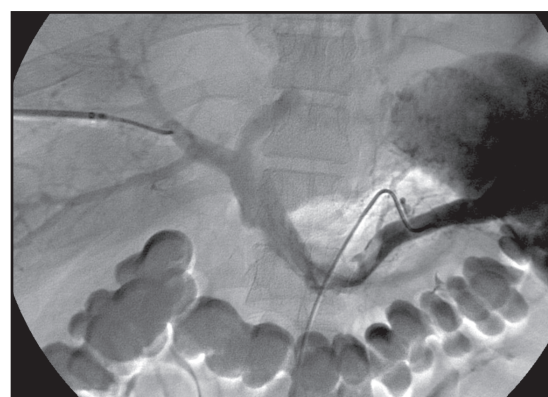
Initial portal venogram



Initial EKOS placement



Recanalization at 21 hour follow-up



Splenic arterial portogram at 41 hours