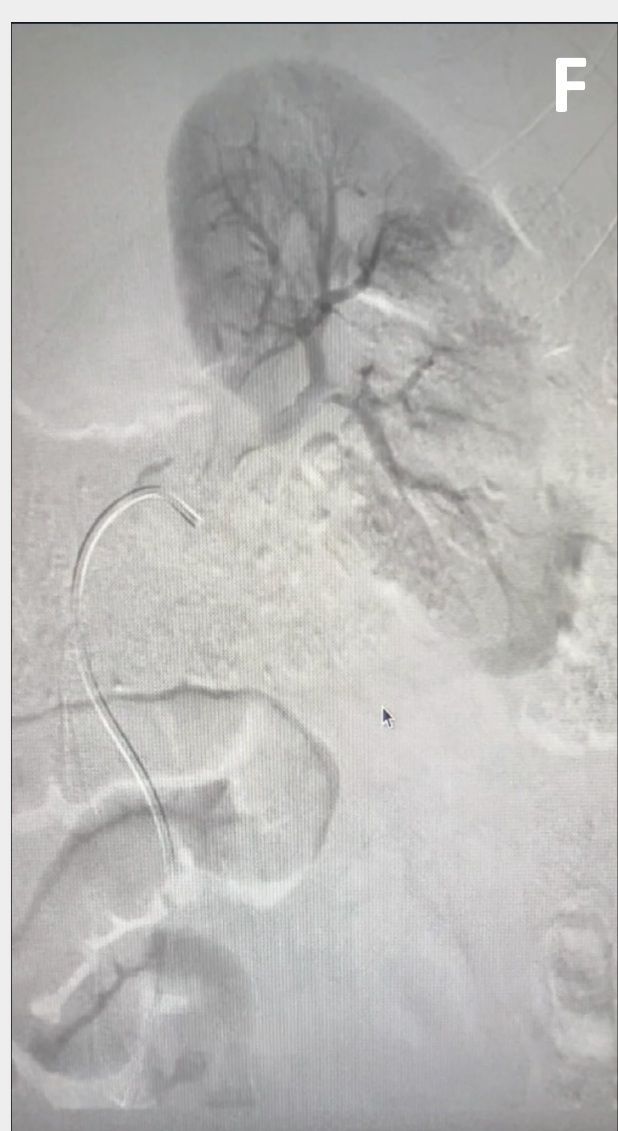
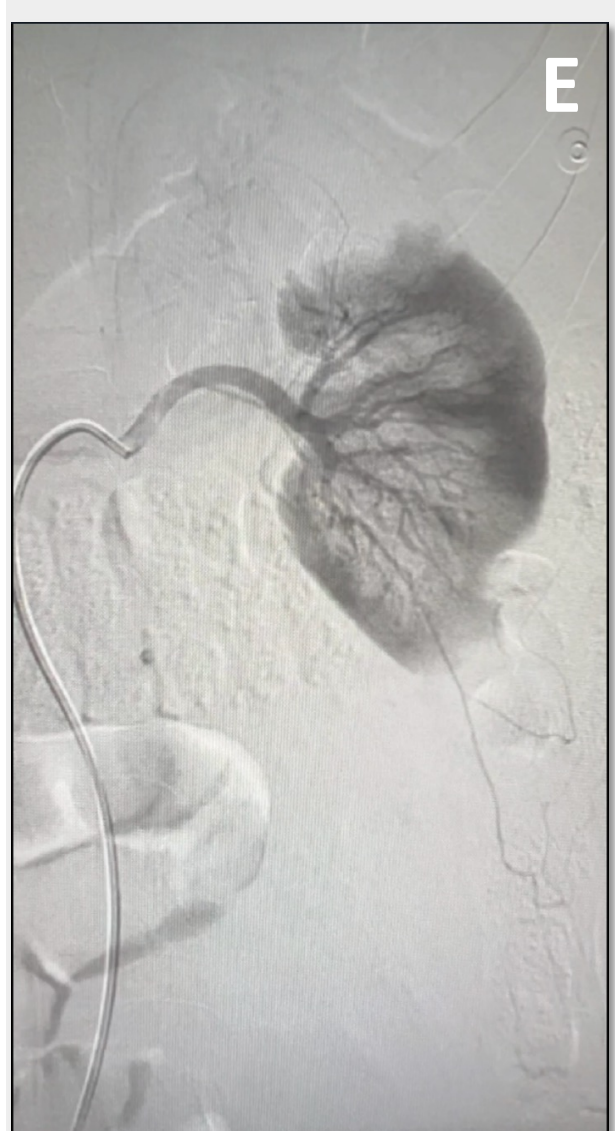
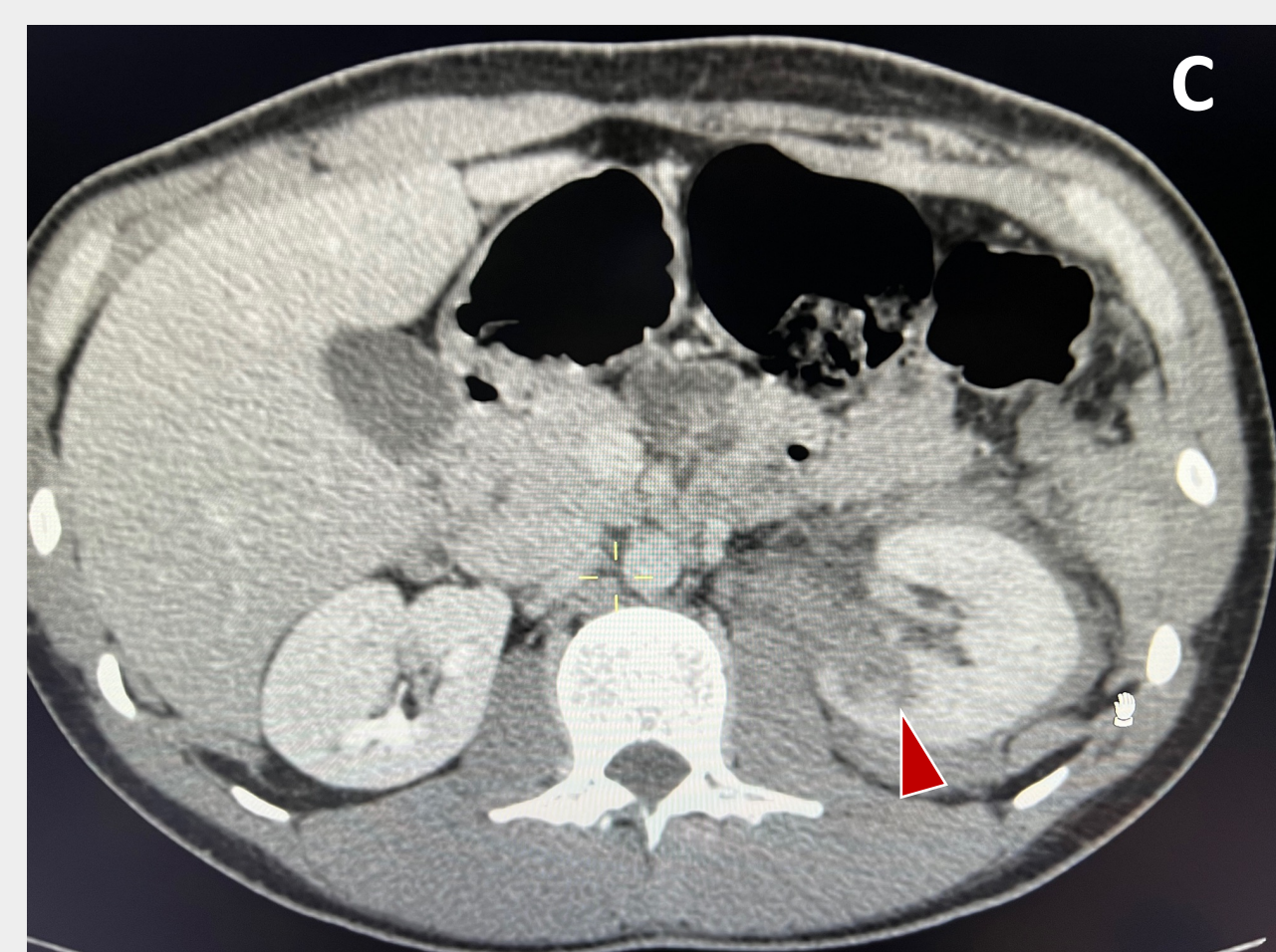
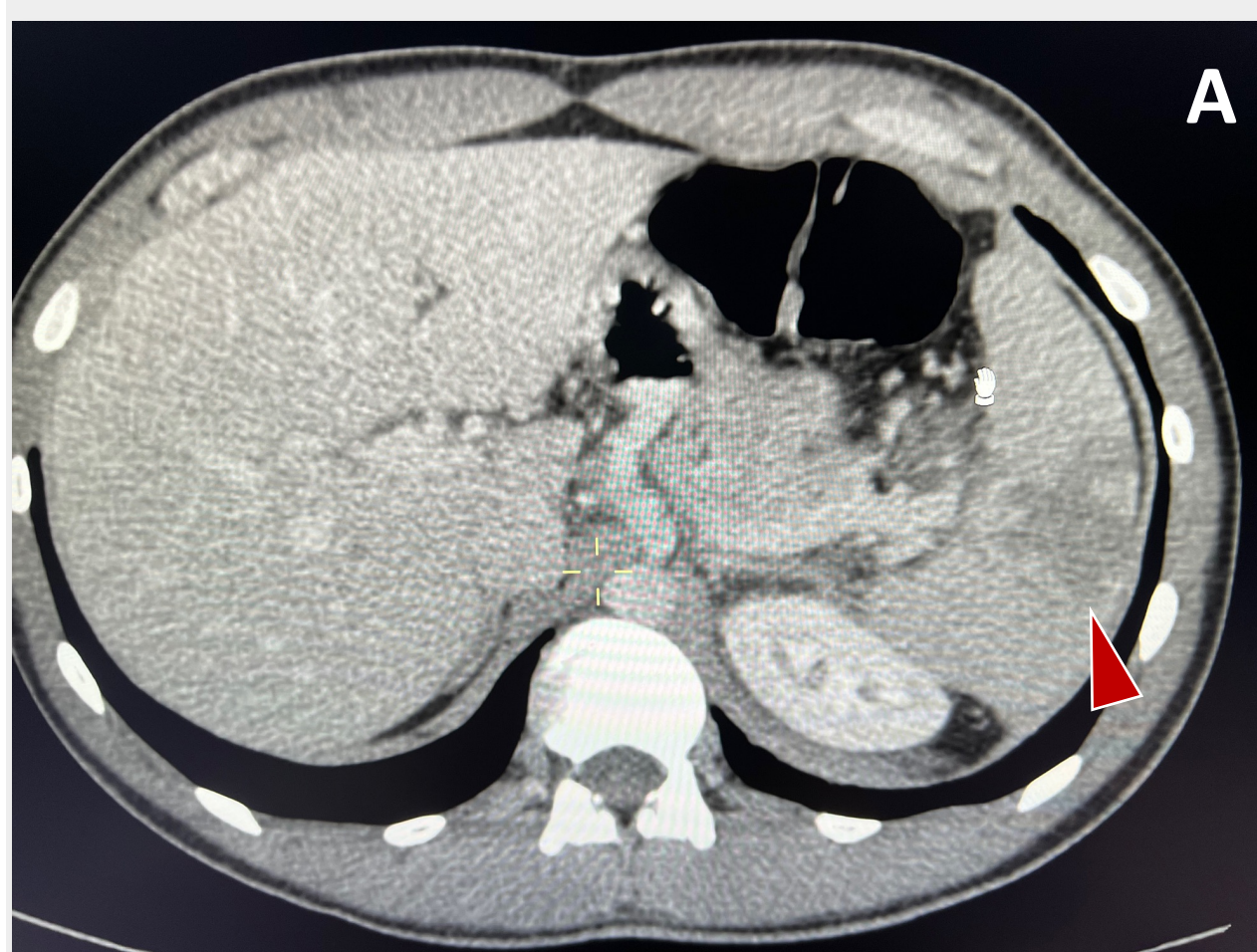


## Combined splenic and renal preservation through surveillance on-demand embolization (SuRV) in severe splenic and renal injury by low-intensity mechanism of injury.

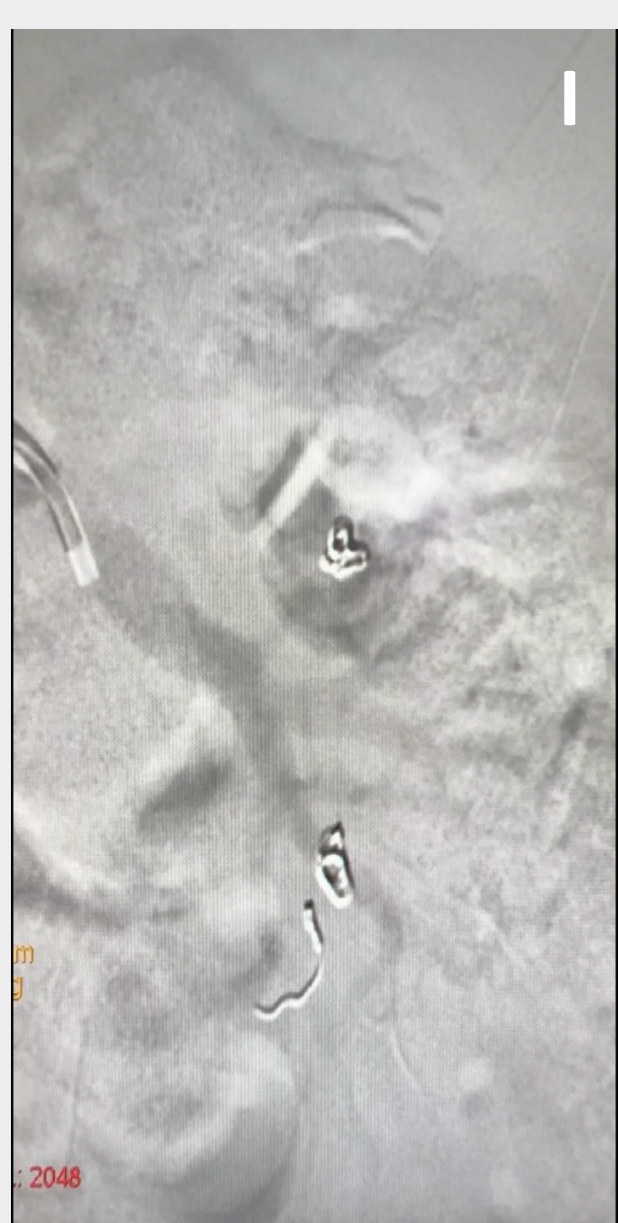
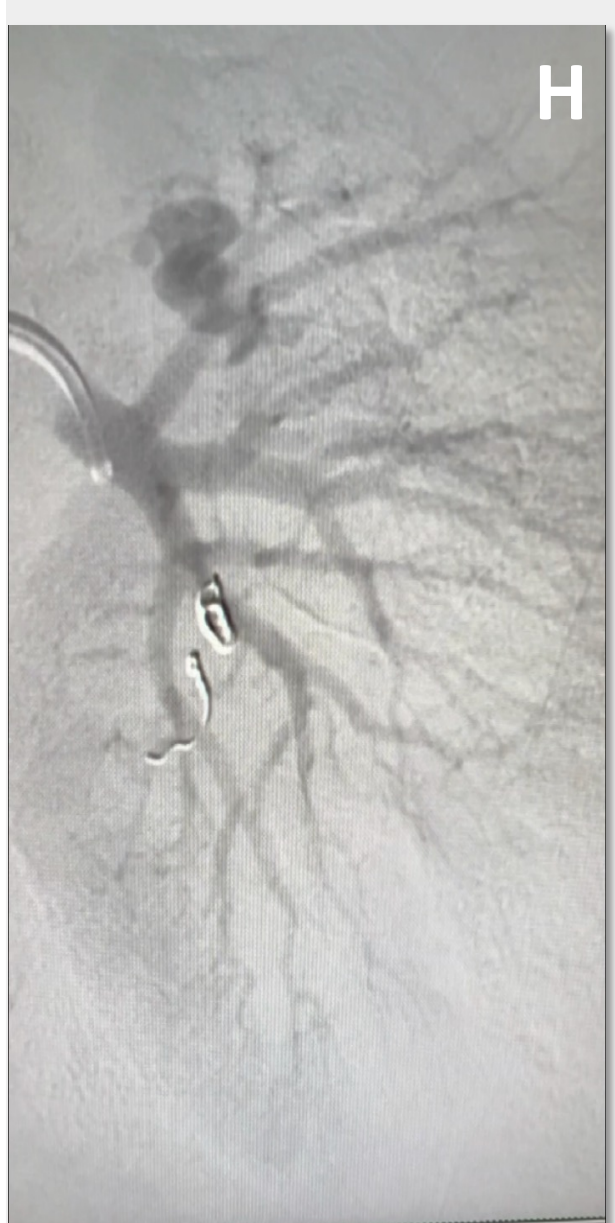
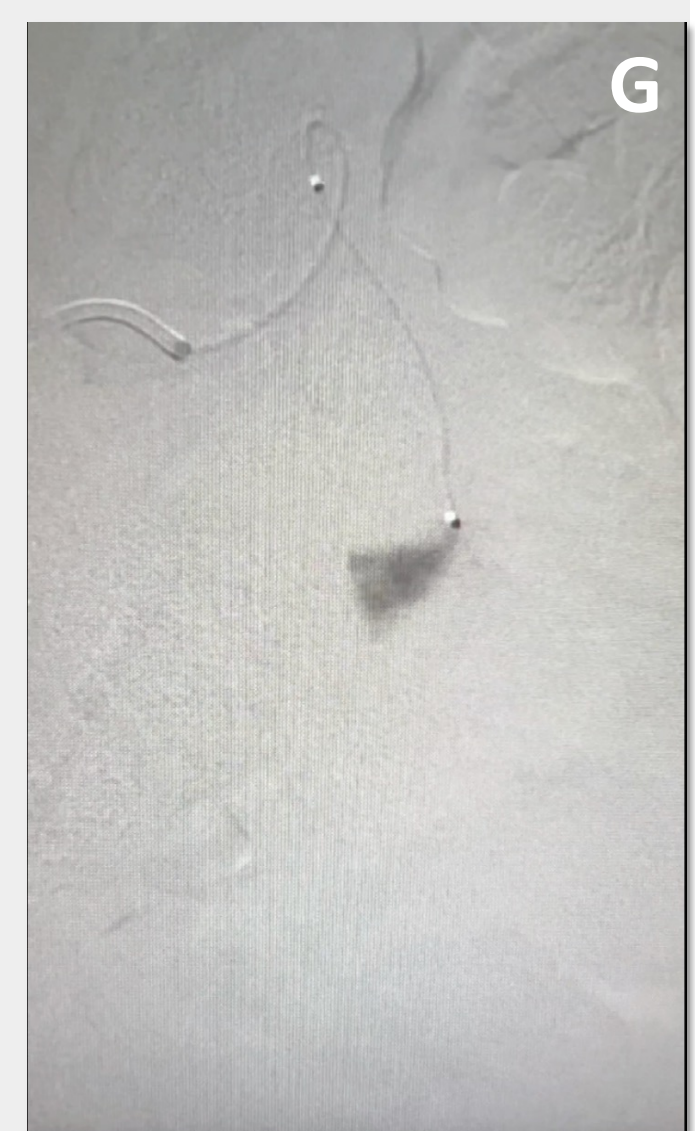
Felipe Vega-Rivera, MD. FACS. Gustavo E. Sanchez-Villanueva, MD.  
F. Gabriel Simental Ochoa, MD. Luis Miguel Zamora Duarte, MD.

### Case presentation

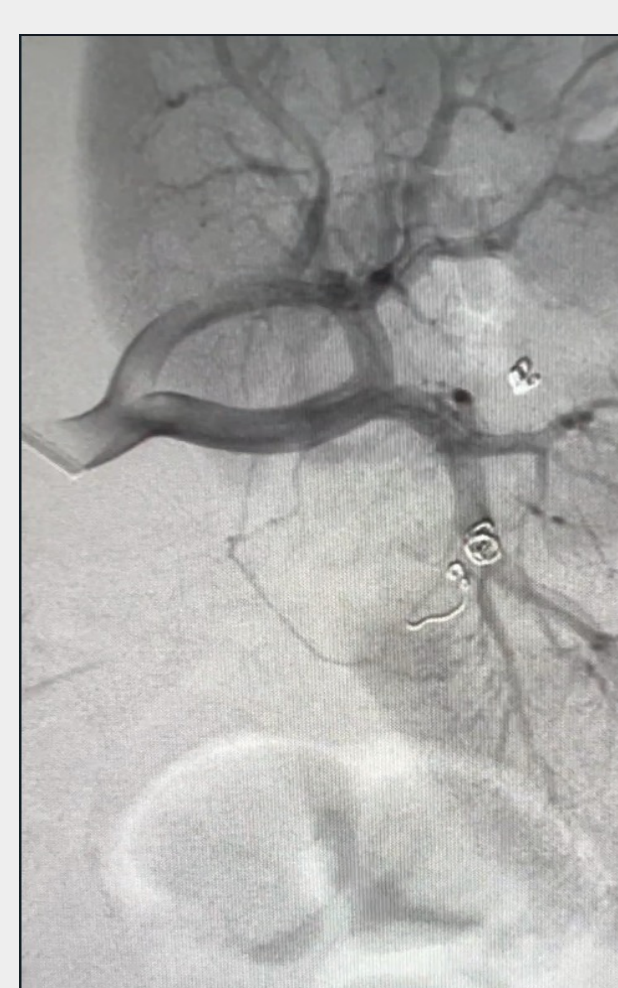
22-year-old male who during an outdoor walk fell from his own height and hit an irregular surface (rock) in his left abdomen reporting immediate intense abdominal pain. He gets to the hospital by car and at his arrival to the Emergency Department (ED) referring incapacitating abdominal pain, the ATLS protocol is carried out without any major abnormalities or hemodynamic instability. Thoracic and pelvic X-ray didn't show any evidence of injuries, the FAST exam reveals free fluid contouring at the lower pole of the spleen. A contrast-enhanced multi-detector tomography (CEMDT) and angio CT was performed showing splenic Grade III OIS-AAST injury with a non-expanding hematoma and no blush (*Figure A and B*) and renal Grade II OIS-AAST injury with blush at the posterior face of the interpolar region (*Figure C and D*), a non-operative management was decided. Because of the blush, a diagnostic angiography was performed to the left renal artery (*Figure E*), and proximal splenic artery both without any trace of active bleeding. (*Figure F*)



Non-operative management continued, and the perisplenic hematoma was monitored. Three days later the patient starts with macroscopic hematuria and sudden pain in the left renal fossa, a new angio CT was performed where 2 arteriocalyceal fistulas were identified. A new supraselective angiography in the inferior/posterior interpolar artery (*Figure G*) and medial/ superior interpolar artery (*Figure H*) that are branches of the left renal and polar superior artery, reveals the fistulas and supraselective embolization with controlled release coils was performed in both sites (*Figure I*). At the end of the procedure a new angiographic exploration of the spleen was done without findings. Hematuria stops after the procedure.



Nevertheless, on day 8th at the hospital stay he had a new sudden intense abdominal pain in the left upper quadrant. A new angio CT was made showing formation of 4 pseudoaneurysms (SPAs) dependent of the terminal branches of the splenic artery (*Figure J*). We decided to perform a direct catheter angiography in the four SPAs managing by embolization with different size-controlled release coils (*Figure K*). At the end of the procedure the previous renal injuries were checked without any associated complications (*Figure L and M*).



The patient's outcome was satisfactory, he was discharged without hematuria or pain, a follow-up CT scan was performed without abnormalities, 30 months later the patient is reintegrated to his regular activities without sequels living a normal life.