

## SPIR Ask Annie - JAN 2017

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### How was the Seldinger Technique Developed? – part 1

The Seldinger technique has been used by adult and pediatric interventional radiologists all over the world since its innovation in 1952. The technique was invented by Dr. Sven-Ivar Seldinger (1921-1998). Dr. Seldinger was born in Mora, Sweden and began his medical career at the Karolinska Institute near Stockholm in the fall of 1940. He finished his initial medical training in 1948 and went on to specialize in radiology. Angiography was in its infancy at this time. In 1929 dos Santos, Caldas and Lamas published their experience with percutaneous vascular access via a trans-lumbar puncture for aortography and in 1940 a Cuban radiologist named Farinas performed aortography from the common femoral artery (CFA) approach following a surgical cut down to expose the CFA [1]. Both of these techniques only allowed visualization of large blood vessels and caused significant morbidity. In the late 1940's researchers attempted advancing a thin, flexible catheter through a large, hollow needle. This technique had serious flaws as the catheter tubing was too flexible to advance further into the vessel and often required a wire to be inserted into the catheter to provide more support which complicated the removal of the puncture needle [2].

Seldinger reflected on using this cumbersome technique in his lab and finding the solution to the problem:

“After an unsuccessful attempt to use this technique I found myself disappointed and sad, with three objects in my hand – a needle, a wire, and a catheter – and ... in a split second I realized in what sequence I should use them: Needle in – wire in – needle off – catheter on wire – catheter in – catheter advance – wire off. I have been asked how this idea turned up and I quote Phokion, the Greek. ‘I had a severe attack of common sense.’ With ‘beginners luck’, the first angiography performed with this technique was successful. A subclavian arteriography, with one single exposure, the catheter introduced through the brachial artery after puncture at the cubital level revealed a mediastinal parathyroid adenoma, unsuccessfully searched for by the surgeon at a former operative exploration.” [2]

1. Noel-Lamy, M., *The Seldinger technique: a short history, and its applications 60 years later*. University of Toronto Medical Journal, 2016. **93**(1): p. 30.
2. Greitz, T., *Sven-Ivar Seldinger*. American Journal of Neuroradiology, 1999. **20**(6): p. 1180-1181.