

DOUBLE SNARE TECHNIQUE FOR RETRIEVAL OF NITINOL WIRE MESH DEVICES

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BACKGROUND

Retrieval of nitinol mesh devices such as atrial septal defect (ASD) or left atrial appendage closure devices may be necessary in rare occasion of device embolization or unsatisfactory positioning of the device, and also may often be associated with technical difficulties or complications.

OBJECTIVE

We report our experience of double snare technique for retrieval of nitinol mesh devices.

METHODS

Double snare technique using 2 snares in a single sheath has been used to retrieve nitinol mesh devices in 11 cases in which the device was embolized or suboptimally positioned. We reviewed the final outcome and clinical data relevant to the retrieval procedure.

RESULTS

We successfully retrieved the devices in all attempted cases using the double snare technique. We applied this technique to retrieve ASD occluders in 10 cases and LAA closure device in 1 case. Median age of total 11 patients was 29 years (range 14 months – 61 years). The reasons for retrieval were various; 5 cases for device repositioning, 5 cases of device embolization (during the procedure, n=3 and next day, n=2) and 1 case of complete heart block 1 day after successful device closure. The retrieved devices were Amplatzer septal occluder (ASO) in 4 cases, Figulla Flex II device (FFO) in 4 cases, Cocoon septal occluder (CSO) in 2 cases and Amplatzer cardiac plug in 1 case. Difficulties in the retrieval procedure were diverse according to the device design, size, used equipment and clinical setting, however the double snare technique was useful to overcome each of the difficulties. No additional vascular access was required in all cases when the retrieval was performed at the time of initial device closure. (Except for 3 cases of later embolization or heart block) Retrieval of the device was possible in most of the cases using the original delivery sheath without the need of upsizing the sheath. There was no other complication related with the closure procedure or retrieval procedure using the double snare technique, and all the patients underwent subsequent device closure except for one case of complete heart block.

CONCLUSIONS

Double snare technique is a useful tool for retrieval of various nitinol wire mesh devices. It may be helpful to circumvent various major problems encountered in retrieval procedure of different kinds of devices and enable a more efficient retrieval by abolishing the need of sheath upsizing, by providing additional grabbing force of snares as well as by preventing the insistent latching of clamping hub of the device at the orifice of the retrieval sheath.