



COBRA HEAD DEFORMITY OF AMPLAZTER - SEPTAL OCCLUDER: PROBLEM OR TECHNIQUE TO PREVENT LEFT ATRIAL DISC PROLAPSE AND HELP IN SUCCESSFUL DEVICE CLOSURE IN DIFFICULT SCENARIO

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Background:

Cobra head deformity, a kind of shape abnormality associated with atrial septal defect Occluders, overall incidence is approximately 3%. All cases where cobra head deformity was documented have analysed to understand incidence and type (transient or permanent) of deformity, mechanisms of precipitation of that deformity and impact and outcome of cobra head deformity while doing atrial septal defect device closure.

Methods:

This study retrospectively analysed all atrial septal device closures in our institute over a period of 5 years (August 2016 to September 2021) for cobra head deformity. Type and size of the Occluder, delivery sheath size, deployment technique, numbers of attempts were analysed. Procedural success, duration, and other complications were studied.

Results:

A total of 15 devices (3.6%) among 408 successful atrial septal defect device closure documented cobra head deformity in this present study. Only 2 occasions (13.3%) cobra head deformity was permanent where changing of device was necessary. In other 13 cases (86.6%) successful device closure was possible where cobra head deformity was transient and self-corrected with gentle manipulations inside the heart without replacing the device.

In this study cobra head deformity was associated exclusively with Amplatzer (100%) Occluders none with Lifetech Cera Occluders (0%). Cobra head deformity was more common with larger devices (26 mm or more - 66.6 %) than smaller devices (24 mm or less -33.33%). Using larger than recommended delivery sheath was identified in 80% cases, multiple device deployment



was documented with cobra head formation in 60% cases and modified deployment technique in 80% of cases.

Despite prolongation of the procedure time, repeated attempts, there were no serious adverse effects.

Conclusions:

Cobra head formation was associated in 3.6 % of atrial septal Occluders in this study exclusively with Amplatzer septal Occluder. Multiple attempts with repetitive capturing and releasing the device inside the heart, larger device size, using larger than recommended delivery sheath, using special techniques like deployment inside pulmonary vein or close to the left atrial wall, pre-disposed to cobra head formation. Removal or changing of device was rarely needed, most deformities were corrected with gentle manipulation.

Taking out of device is not always necessary, rather rapid release of right atrial disc is advisable followed by gentle manipulation of whole device with push pull technique (back and forth movement) along with slight rotation can correct the deformity and ultimately help in successful device closure in technically difficult cases scenarios. Actually, transient cobra head formation of Amplatzer device is advantageous which can prevent prolapse of left atrial disc while the right atrial disc is being deployed and help successful device closure in challenging case scenarios.