Anterior communicating artery aneurysm endovascular treatment complications

Endovascular treatment is associated with a high rate of complete angiographic occlusion. However, the procedure-related permanent morbidity and mortality are not negligible for aneurysms in this location [1].

Delgado Acosta et al. from Hospital Universitario Reina Sofía aimed to report the characteristics of patients suffering intra- or peri-procedural ruptures during embolization of cerebral aneurysms.

Between March 1994 and October 2021, 648 consecutive cerebral aneurysms were treated by the endovascular procedure. Medical records were reviewed retrospectively with emphasis on procedure description, potential risk factors, and clinical outcomes related to intra- or peri-procedural rupture.

Of the 648 patients, 17 (2.6%) suffered an intra- or peri-procedural hemorrhagic event. The most common location was the anterior communicating artery. There was no significant difference between previously ruptured and unruptured aneurysms in the incidence of bleeding. In four patients, bleeding was evident within 24 h after the procedure. The clinical evolution at three months was poor and only four patients presented a positive evolution. There were 11 deaths (64.71%). Balloon remodeling was associated with an increased frequency of ruptures, while stenting was a safer treatment.

Aneurysm rupture during endovascular therapy is unpredictable, and its occurrence can be devastating. The incidence is quite low although the outcome is frequently poor. Early detection and proper management, including prompt occlusion of the aneurysm, are important to achieve a positive outcome. [Anterior communicating artery aneurysms and those treated with balloon catheters have a higher incidence of aneurysm rupture. A small number of ruptures of uncertain origin occur that go unnoticed in digital subtraction angiography [2]

The immediate and long-term outcomes, complications, recurrences and the need for retreatment were analyzed in a series of 280 consecutive patients with anterior communicating artery aneurysms treated with the endovascular technique. From October 1992 to October 2001 280 patients with 282 anterior communicating artery aneurysms were addressed to our center. For the analysis, the population was divided into two major groups: group 1, comprising 239 (85%) patients with ruptured aneurysms and group 2 comprising of 42 (15%) patients with unruptured aneurysms. In group 1, 185 (77.4%) patients had a good initial pre-treatment Hunt and Hess grade of I-III. Aneurysm size was divided into three categories according to the larger diameter: less than 4 mm, between 4 and 10 mm and larger than 10 mm. The sizes of aneurysms in groups 1 and 2 were identical but a less favorable neck to depth ratio of 0.5 was more frequent in group 2. Endovascular treatment was finally performed in 234 patients in group 1 and 34 patients in group 2. Complete obliteration was more frequently obtained in group 2 unlike a residual neck or opacification of the sac that were more frequently seen in group 1. No peri-treatment complications were recorded in group 2. In group 1 the peri-treatment mortality and overall peri-treatment morbidity were 5.1% and 8.1% respectively. Eight patients (3.4%) in group 1 presented early post treatment rebleeding with a mortality of 88%. The

mean time to follow-up was 3.09 years. In group 1, 51 (21.7%) recurrences occurred of which 14 were minor and 37 major. In group 2, eight (23.5%) recurrences occurred, five minor and three major. Two patients (0.8%) presented late rebleeding in group 1. Twenty-seven second endovascular retreatments were performed, 24 (10.2%) in group 1 and three (8.8%) in group 2, seven third endovascular retreatments and two surgical clippings in group 1 only. There was no additional morbidity related to retreatments. Endovascular treatment is an effective method for the treatment of anterior communicating artery aneurysms allowing late rebleeding prevention. Peri-treatment rebleeding warrants caution in anticoagulation management. This is a single center experience and the follow-up period is limited. Patients should be followed-up in the long-term as recurrences may occur and warrant additional treatment [3].

Prolonged anterograde amnesia and disorientation after anterior communicating artery aneurysm coil embolization [4]

LVIS stent-assisted coiling for ruptured wide-necked ACoA aneurysms was safe and effective, with a relatively low rate of perioperative complications and a high rate of complete occlusion at follow-up [5]

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