Summary

Intracranial aneurysms are common lesions; autopsy studies indicate a prevalence in the adult population between 1 and 5 percent. Fortunately, most aneurysms are small, and an estimated 50 to 80 percent of all aneurysms do not rupture during the course of a person's lifetime. Intracranial aneurysms are considered to be sporadically acquired lesions, although a rare familial form has been described.

Nontraumatic subarachnoid hemorrhage is a neurologic emergency caused by rupture of intracranial aneurysms, which accounts for about 80 percent of cases and has a high rate of death and complications.

Persons with intracranial aneurysms presenting with symptoms of compression such as cranial-nerve palsies or brain-stem dysfunction should be evaluated and treated promptly because of the increased risk of rupture in this subgroup. The risk of rupture of an intracranial aneurysm that has not bled but is found incidentally is much less certain, and these intracranial aneurysms are generally managed electively.

The three methods of choice to identify or rule out an intracranial aneurysm and to delineate the size and morphologic features of an intracranial aneurysm are CT Angiography (CTA), magnetic resonance angiography (MRA), and angiography by direct intra-arterial catheterization (catheter angiography); the last is still considered the benchmark. Several studies have evaluated the accuracy of detecting intracranial aneurysms by comparing CTA, MRA, and the synergistic combination of CTA and MRA with catheter angiography, intraoperative findings, or both.

The standard method for treatment of intracranial aneurysms was surgical clipping. Until recently endovascular treatment was restricted to patients in whom the aneurysms were unsuitable for clipping because of the huge size and/or the location or in whom surgical clipping was relatively contraindicated**.**

Since the introduction of controlled detachable coils for endovascular embolization of aneurysms, embolization is increasingly used and in some institutes embolization is now proposed as the initial method of treatment.

However, the unknown long term effectiveness and the relatively high percentage of subtotal or partial occlusion are still problems associated with this procedure. As intracranial aneurysms management offers a challenging problem of deciding whether an endovascular coil embolization or clipping surgery is the more appropriate treatment, different strategies have been adopted.

The main factors determining the initial degree of anatomical occlusion in aneurysm coiling are aneurysm morphology.

The degree of occlusion at the time of follow up for direct aneurysm coiling is determined by several factors. The tighter the original coil packing is, the better the long-term occlusion will be**.**

Patients who have aneurysms unsuitable for endovascular treatment should be treated surgically if that option is considered viable by a vascular neurosurgeon. This still accounts for a substantial proportion of patients with ruptured aneurysms; however, the further development of bioactive coils,

dedicated intracranial stents, and newer and better aneurysm coil devices may have some impact in the future. These developments will expand the definition of aneurysms considered suitable for endovascular therapy**.**

The 5-year follow-up results of the International Subarachnoid Aneurysm Trial (ISAT) were published. ISAT has demonstrated that endovascular coiling of ruptured intracranial aneurysms has a significant advantage over neurosurgical clipping in the first year after treatment. After 5 years, the benefit seems to have vanished, and no significant difference in either disability or mortality remains between the 2 treatment modalities.

Therefore, for everyday clinical practice and decision making, coiling and clipping are to be considered equivalent in the long term.