

## **Spontaneous Resolution of Intracranial Arachnoid Cysts**

**Safwat Abouhashem, Mahmoud M. Taha, Sami Hasanain**

Department of Neurosurgery, Faculty of Medicine, Zagazig University, Egypt

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Intracranial arachnoid cysts represent about 1% of intracranial space-occupying lesions (4, 5,13) but the natural history, clinical features and treatment of intracranial arachnoid cysts are not fully understood (11,16). They are commonly considered as congenital, benign extra axial anomalies due to aberration of development of meningeal membranes (9, 13).

The middle cranial fossa is the commonest site for their location representing about 50-60% followed by the posterior fossa (1). There are numerous scientific theories regarding the cause of these cysts which are ball valve mechanism (14) , osmotic gradient theory between the intra and extra cyst fluid (15) , the malformation theory which consider the cyst is a trapped fluid content associated with cerebral lobe agenesis (1, 12), and finally the hyper secretion of the fluid by the cyst lining (1).

There are many classifications for intracranial arachnoid cysts (12, 14, 15). Galassi and others (7, 8) studying the radiological aspects of middle fossa cysts and classified them into 3 types based on their communication with the subarachnoid space and their dimensions. The first and second type are small to medium in size, produce no or mild mass effect with occasional neurological signs. Those two types communicate with subarachnoid space and fill with metrizamide in the course of cisternography cysts of the third type do not communicate with the subarachnoid space and are larger than the previous types. They may exert a marked mass effect on the nervous structures and the ventricular system (87, 8).

The clinical presentation of arachnoid cysts is variable and includes mental retardation, seizures, headache, vomiting and motor deficit (8, 9, 12). However, many cases are silent and are discovered incidentally (1).

Although intracranial arachnoid cysts were described for the first time by Bright in 1830 (10) Spontaneous decompression of arachnoid cysts has been rarely reported and, it takes long time to report the first cases of spontaneous resolution by Beltramello in 1987 (2) and it seems that the majority of non-surgical resolution of intracranial arachnoid cysts occurs in children and young adolescence (3, 6).

The cause of spontaneous resolution is not understood. Head trauma may cause the arachnoid layer to tear. Even in patients with no major trauma, excessive breathing, coughing or sport activities can produce sufficient stress to tear the arachnoid membrane (3). This may explain the high incidence of spontaneous resolution in children due to their high level of activities (3, 6). The close vicinity of arachnoid cysts to the ventricular system, subdural space or basal cisterns means that the cyst may eventually drain into the subarachnoid space via minimal communications with these structures (3). Alternatively, a change in the one way valve mechanism that created the arachnoid cysts may cause the cerebrospinal fluid to regress (6). In patients with coexistent brain tumor and arachnoid cyst, mechanical compression by the enlarged tumor or secretion of growth factors may anticipate mechanical or chemical decompression (3, 6).

Spontaneous resolution of arachnoid cysts may more common than reported in the literatures. Russo and his colleagues (13) suggest that the rate of spontaneous resolution may be affected by the aggressive application of surgical intervention. However, it is not clear how long to wait for spontaneous cure. The time lapse between the initial diagnosis and spontaneous resolution ranged between few days to several years. We believe that the use of surgery should be limited to patients with unequivocal compression of neural structures or symptoms that can be attributed to the location of intra cranial arachnoid cysts.

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