Meningitis as a precursor of arachnoiditis:

As we have seen, arachnoiditis is inflammation in the meninges. The acute, better-known form is meningitis, which simply means inflammation of the meninges (not specifying which layer).

Generally, the term is recognised as referring to an acute, sometimes life-threatening condition, usually caused by infection.

Cases in children understandably hit the headlines. Bacterial meningitis, particularly meningococcal, is severe and can cause serious longer-term problems.

However, there may be more subtle sequelae, of which arachnoiditis is one.

Meningitis can therefore be regarded as a trigger event and it is thus important to look at features in different types of meningitis, so that the individuals who experience the illness can be recognised as being at risk of later developing arachnoiditis.

There are 2 types of meningitis anatomically speaking

1. Leptomeningitis: involving the pia and arachnoid

2. Pachymeningitis involving the dura.

Meningitis can also be classified as:

1. Cranial

2. Spinal

Or:

1. Infective

2. Aseptic (non-infective)
(Aseptic meningitis used to include viral meningitis.)

Kioumehr et al. ([1]) characterised the patterns of cranial meningeal enhancement in post contrast MRI images.

Leptomeningeal (pia and arachnoid): enhancement followed the contours of the cerebral gyri etc. and/or involved meninges around the basal cisterns.

Pachymeningeal (dural) involved linear, thick enhancement or nodular, but not extending into the gyri or involving the basal cisterns.

The authors divided the enhancement into 5 aetiological groups: carcinomatous, infectious,

inflammatory (secondary to collagen vascular disease or acidosis), reactive (post-traumatic, post-surgical) and chemical (rupture of cysts, intraspinal injections).

There were 83 subjects, of whom 30 had carcinomatous, 28 infectious, 14 reactive, 8 chemical and 3 inflammatory aetiology.

83% of the carcinomatous, 100% of the reactive and inflammatory, 12% of chemical subgroups demonstrated pachymeningeal enhancement, whereas 100% of the infectious and 78% of the chemical subgroups had leptomeningeal enhancement.

The authors suggested that the variation in appearance might be helpful in distinguishing between infective and non-infective meningitis.

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[1] Kioumehr F, Dadsetan MR, Feldman N, Mathison G, Moosavi H, Rooholamini SA, Verma RC *J Comput Assist Tomogr* 1995 Sep-Oct ; 19(5): 713-20 Postcontrast MRI of cranial meninges: leptomeningitis versus pachymeningitis.