



## Summary of NICE Guidelines

Title	Subarachnoid haemorrhage caused by a ruptured aneurysm: Diagnosis and management
NICE Reference	NG228
Date of Publication	23 November 2022
Date of Summary by Trainee	9 June 2023
Summary of Guidance (Max 250 words)	<p>Patients with subarachnoid haemorrhage due to a ruptured aneurysm present with an unexplained, acute “thunderclap” headache and should be assessed urgently.</p> <p><b>Diagnosis</b></p> <p>First-line diagnostic investigation: non-contrast CT scan</p> <ul style="list-style-type: none"><li>• <u>Positive CT head scan (blood in subarachnoid space):</u> Subarachnoid haemorrhage diagnosis likely.</li><li>• <u>Negative CT head scan performed &gt;6 hours after symptom onset:</u> Lumbar puncture should be carried out to detect blood in the cerebrospinal fluid (CSF). This should be performed at least 12 hours after symptom onset to enable bilirubin formation to be detected reliably. The diagnostic accuracy of earlier lumbar puncture is likely to be low because it can take several hours for blood to appear in the lumbar subarachnoid sac. CSF should be analysed using spectrophotometry, and a subarachnoid haemorrhage can be diagnosed if the lumbar puncture sample shows evidence of both elevated bilirubin (xanthochromia) and oxyhaemoglobin in accordance with defined cut-off values.</li><li>• <u>Negative CT head scan performed &lt;6 hours after symptom onset:</u> Lumbar puncture is not indicated and other diagnoses should be considered.</li></ul> <p>To confirm the diagnosis, CT angiography should be performed</p> <ul style="list-style-type: none"><li>• <u>Positive CT angiography</u> Subarachnoid haemorrhage due to a ruptured aneurysm.</li><li>• <u>Negative CT angiography</u> Digital subtraction angiography or magnetic resonance angiography should be carried out. If the latter is negative, other diagnoses should be considered.</li></ul> <p><b>Management</b></p> <ul style="list-style-type: none"><li>• Medical management using nimodipine (calcium channel blocker) to control cerebral vasospasm.</li><li>• Reduce the risk of venous thromboembolism.</li><li>• Surgical intervention of the aneurysm (endovascular coiling or neurosurgical clipping).</li><li>• Transcranial doppler monitoring should <b>NOT</b> be used to guide clinical management of subarachnoid haemorrhage.</li></ul>
Impact on Lab (See below)	■ Moderate

Lab professionals to be made aware	<ul style="list-style-type: none"> <li>✓ Laboratory Manager</li> <li>✓ Chemical Pathologist</li> <li>✓ Clinical Scientist</li> <li>✓ Biomedical Scientist</li> </ul>
Please detail the impact of this guideline (Max 150 words)	<p>This guideline covers the diagnosis and management of patients with subarachnoid haemorrhage due to a ruptured aneurysm.</p> <p>Laboratories should be aware of the following:</p> <ul style="list-style-type: none"> <li>• The role of xanthochromia as a second-line investigation in the diagnosis of subarachnoid haemorrhage due to a ruptured aneurysm.</li> <li>• The impact of other factors, for example elevated serum bilirubin, CSF protein and pre-analytical considerations, that can impact measurement of bilirubin and oxyhaemoglobin in the CSF.</li> </ul>

#### **Impact on Lab**

- **None:** This NICE guideline has no impact on the provision of laboratory services
- **Moderate:** This NICE guideline has information that is of relevance to our pathology service and may require review of our current service provision.
- **Important:** This NICE guideline is of direct relevance to our pathology service and will have a direct impact on one or more of the services that we currently offer.

**Written by: Alexandra Matthews**

**Reviewed by: Craig Webster (Consultant Clinical Scientist)**

**Date: 28 July 2023**