



Neuropathology of Brain Swelling and Herniation

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Case-Based Questions (please see page 3 for answers)

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| 1. | A 3-month old presents to the ER with acute subdural bleeding, and despite resuscitation, dies within a few hours. The autopsy will most likely show: |
| a. | Central spinal cord ischemia |
| b. | Cranial sutural diastasis |
| c. | Subfalcine herniation |
| d. | Transforaminal herniation |
| e. | Transtentorial herniation |

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| 2. | A 68-year-old woman with a history of hypertension presents with an acute hemispheric infarct. She undergoes decompressive craniectomy to prevent which complication? |
| a. | Reperfusion hemorrhage |
| b. | Subfalcine herniation |
| c. | Transforaminal herniation |
| d. | Transtentorial herniation |
| e. | Trapped ventricle |

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| 3. | A 42-year-old man with a frontal lobe glioma is treated for peritumoral swelling primarily from which type of brain edema? |
| a. | Cytotoxic |
| b. | Interstitial |
| c. | Osmotic |
| d. | Vasogenic |
| e. | |

Scroll to Page 3 for answers

Correct Answers and Rationales

Question 1 Correct Answer and Rationale: **b. Cranial sutural diastasis**

Rationale: Sutural diastasis is the first and thus most common clue to brain swelling from a subdural herniation in infants with open fontanelles. Only in cases progressing to diffuse ischemia/brain death may one see the other listed processes.

Question 2 Correct Answer and Rationale: **c. Transforaminal herniation**

Rationale: The other listed complications occur commonly after craniectomy, but transforaminal herniation is rapidly lethal.

Question 3 Correct Answer and Rationale: **d. Vasogenic**

Rationale: Peritumoral swelling is related to increased vascular permeability in part due to tumoral secretion of vascular endothelial growth factor.