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### Response

We thank Kate Shipman, Satheesh Ramalingam, Charlotte Dawson and Zhainab Yasear for their comments and recognise there is ongoing debate regarding the additional benefit of the traditional CT-lumbar puncture (LP) algorithm vs CT alone in excluding subarachnoid haemorrhage.[1]

We agree that CT pick up of subarachnoid haemorrhage has improved significantly. It is however important to emphasise that studies reporting near 100% sensitivity and specificity were with CT performed within 6 hours of onset. In one recent UK study in routine practice, only ~10% of patients were imaged within this timeframe.[2] Sensitivity falls with increasing delay to presentation and the importance of considering lumbar puncture correspondingly increases. Furthermore, detection of subarachnoid haemorrhage on CT imaging remains operator dependent. In routine practice, scans are generally not reported by an experienced neuroradiologist as in the majority of the published studies but rather by a trainee general radiologist, often out of hours.

We would therefore strongly caution against false reassurance from a negative CT report in a patient with a suggestive clinical history, particularly with a delayed presentation. It is for this reason that major international guidelines[3,4] continue to recommend CT/LP in cases with high clinical suspicion. However, we entirely agree that pre-test probability should always be carefully considered in evaluating the need for lumbar puncture after CT. Ease of access to CT has resulted in increasing numbers of patients being scanned without adequate phenotyping of the presenting headache. Subsequent rote application of guidelines in patients in whom SAH was in any case clinically unlikely pre-CT unfortunately results in too many unnecessary lumbar punctures being performed. ■

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## Mis-attribution of ectopic corticotropin-releasing hormone secretion (causing eutopic secondary adrenocorticotropic hormone secretion) to ectopic adrenocorticotropic hormone secretion?

Editor – In their Lesson-of-the month,[1] Kleinig and Russell describe a case of adrenocorticotropic hormone (ACTH)-dependent Cushing's syndrome, which they have ascribed to a metastatic small cell neuroendocrine carcinoma, presumed to have arisen through de-differentiation of a prostate adenocarcinoma. They describe this as a case of 'ectopic ACTH secretion' both in the abstract and repeatedly in the main body of text. However, the complete absence of any ACTH labelling in tumour tissue points towards this description being both inaccurate and misleading. In the absence of tumour-ACTH immunostaining, the actual ectopic hormone secreted was almost certainly corticotropin-releasing hormone (CRH), with ACTH being secreted eutopically in the pituitary gland. Lois *et al* reviewed the literature and identified no convincing case of directly-secreted ectopic ACTH (as opposed to CRH) secretion by prostate adenocarcinomas.[2] Although the authors had no access to a CRH serum assay, nor CRH tissue immunolabelling, ectopic CRH secretion could easily have been confirmed at autopsy through demonstration of corticotroph cell hyperplasia by ACTH immunostaining of the pituitary gland itself. ■

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### Response

We would like to thank Dr Quinton for his thoughtful and precise response to our case report. The possibility of our patient's Cushing's syndrome being secondary to CRH secretion is recognised and accepted. The dominant histology, however, of both the pelvic mass and metastatic lesions were of a small cell neuroendocrine tumour rather than adenocarcinoma. Prostate specific antigen level was normal, suggesting a quiescent adenocarcinoma component. When considering the possibility of CRH secretion, we reviewed the literature and found only one case of small cell cancer of the prostate releasing CRH,[1] as opposed