### Neuroendocrine Imaging

**Variant 1:** Adult. Suspected or known hypofunctioning pituitary gland (hypopituitarism, growth hormone deficiency, growth deceleration, panhypopituitarism, hypogonadotropic hypogonadism). Initial imaging.

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### Variant 2: Adult. Suspected or known hyperfunctioning pituitary adenoma (hyperthyroidism [high thyroid-stimulating hormone], Cushing syndrome [high adrenal corticotrophic hormone], hyperprolactinemia, acromegaly, or gigantism). Initial imaging.

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| CT sella with IV contrast  | May be appropriate | Limited | 1-10 mSv | 0.3-3 mSv [ped] | 5 | 5 | 0 | 2 | 2 | 0 | 4 | 7 | 0 | 0 | 0 |
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## CTA head with IV contrast
- Usually not appropriate
- Limited
- ☢☢☢ 1-10 mSv
- ☢☢☢☢ 3-10 mSv [ped]

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## Venous sampling petrosal sinus
- Usually not appropriate
- Limited
- Varies
- Varies

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## MRA head without IV contrast
- Usually not appropriate
- Expert Consensus
- O 0 mSv
- O 0 mSv [ped]

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## MRA head with IV contrast
- Usually not appropriate
- Expert Consensus
- O 0 mSv
- O 0 mSv [ped]

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## MRA head without and with IV contrast
- Usually not appropriate
- Expert Consensus
- O 0 mSv
- O 0 mSv [ped]

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**Variant 4:** Adult. Pituitary apoplexy. Initial imaging.

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| CT sella without IV contrast    | May be appropriate (Disagreement) | Expert Opinion | Radiation Dose | Study Quality |
|---------------------------------|-----------------------------------|----------------|---------------|
|                                 |                                   | ☢☢☢ 1-10 mSv | 5             |
|                                 |                                   | ☢☢☢ 0.3-3 mSv [ped] | 4             |
|                                 |                                   | ☢☢☢ 0.3-3 mSv [ped] | 0             |
|                                 |                                   | ☢☢☢ 1-10 mSv | 1             |
|                                 |                                   | ☢☢☢ 1-10 mSv | 0             |
|                                 |                                   | ☢☢☢ 1-10 mSv | 0             |
| References                       | Study Quality        |
| 85 (23585661)                    | 3                    |
| 84 (17898201)                    | 2                    |
| 83 (26414232)                    | 4                    |

| CT sella with IV contrast       | May be appropriate | Limited | Radiation Dose | Study Quality |
|---------------------------------|--------------------|--------|---------------|
|                                 |                    | ☢☢☢ 1-10 mSv | 4             |
|                                 |                    | ☢☢☢ 0.3-3 mSv [ped] | 4             |
|                                 |                    | ☢☢☢ 0.3-3 mSv [ped] | 0             |
|                                 |                    | ☢☢☢ 1-10 mSv | 1             |
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| References                       | Study Quality        |
| 16 (15927868)                   | 4                    |

| MRI sella with IV contrast      | May be appropriate | Limited | Radiation Dose | Study Quality |
|---------------------------------|--------------------|--------|---------------|
|                                 |                    | ☢☢☢ 1-10 mSv | 4             |
|                                 |                    | ☢☢☢ 0.3-3 mSv [ped] | 4             |
|                                 |                    | ☢☢☢ 0.3-3 mSv [ped] | 0             |
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| References                       | Study Quality        |
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| 83 (26414232)                    | 4                    |

| CTA head with IV contrast       | Usually not appropriate | Limited | Radiation Dose | Study Quality |
|---------------------------------|-------------------------|--------|---------------|
|                                 |                         | ☢☢☢ 1-10 mSv | 2             |
|                                 |                         | ☢☢☢ 3-10 mSv [ped] | 2             |
|                                 |                         | ☢☢☢ 3-10 mSv [ped] | 0             |
|                                 |                         | ☢☢☢ 1-10 mSv | 1             |
|                                 |                         | ☢☢☢ 1-10 mSv | 0             |
|                                 |                         | ☢☢☢ 1-10 mSv | 0             |
| References                       | Study Quality        |
| 20 (36838385)                    | 3                    |

| Venous sampling petrosal sinus  | Usually not appropriate | Expert Consensus | Radiation Dose | Study Quality |
|---------------------------------|-------------------------|-----------------|---------------|
|                                 |                         | Varies         | 1             |
|                                 |                         | Varies         | 1             |
|                                 |                         | Varies         | 15            |
|                                 |                         | Varies         | 0             |
|                                 |                         | Varies         | 0             |
|                                 |                         | Varies         | 0             |
|                                 |                         | Varies         | 0             |
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|                                 |                         | Varies         | 0             |
|                                 |                         | Varies         | 0             |
|                                 |                         | Varies         | 0             |
|                                 |                         | Varies         | 0             |

| MRA head without IV contrast    | Usually not appropriate | Expert Consensus | Radiation Dose | Study Quality |
|---------------------------------|-------------------------|-----------------|---------------|
|                                 |                         | O 0 mSv         | 1             |
|                                 |                         | O 0 mSv [ped]   | 1             |
|                                 |                         | O 0 mSv [ped]   | 8             |
|                                 |                         | O 0 mSv [ped]   | 4             |
|                                 |                         | O 0 mSv [ped]   | 1             |
|                                 |                         | O 0 mSv [ped]   | 1             |

<p>| MRA head without and with IV contrast | Usually not appropriate | Expert Consensus | Radiation Dose | Study Quality |
|---------------------------------------|-------------------------|-----------------|---------------|
|                                       |                         | O 0 mSv         | 1             |
|                                       |                         | O 0 mSv [ped]   | 1             |
|                                       |                         | O 0 mSv [ped]   | 8             |
|                                       |                         | O 0 mSv [ped]   | 4             |
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**Variant 5: Adult. Surveillance postpituitary or sellar mass resection.**

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References: 111 (3554937)  Study Quality: 4
**Appendix Key**

A more complete discussion of the items presented below can be found by accessing the supporting documents at the designated hyperlinks.

**Appropriateness Category:** The panel’s recommendation for a procedure based on the assessment of the risks and benefits of performing the procedure for the specified clinical scenario.

**SOE:** Strength of Evidence. The assessment of the amount and quality of evidence found in the peer reviewed medical literature for an appropriateness recommendation.

- **References:** The citation number and PMID for the reference(s) associated with the recommendation.
- **Study Quality:** The assessment of the quality of an individual reference based on the number of study quality elements described in the reference.

**RRL:** Relative Radiation Level. A population based assessment of the amount of radiation a typical patient may be exposed to during the specified procedure.

**Rating:** The final rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

**Median:** The median rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

**Final tabulations:** A histogram showing the number of panel members who rated the procedure as noted in the column heading (ie, 1, 2, 3, etc.).

Additional supporting documents about the AC methodology and processes can be found at [www.acr.org/ac](http://www.acr.org/ac).