Radiology Teaches®

Case Example 1 Scenario:

https://cortex.acr.org/Presenters/CaseScript/CaseView?Info=WXls88jOJ7t9TDrSvYRg2OE2hGqBvgc8M%2fg9Pgojwg79462l73igSMJu2tdTV8xZ

## Scenario Edit

A 71-year-old woman with a history of diabetes mellitus presents six weeks after her initial presentation for a deep plantar foot ulcer. Despite routine wound care, the ulcer has progressed. You are concerned about osteomyelitis. There is no evidence of osteomyelitis on the follow-up foot x-rays and the patient has normal renal function (GFR >60).

AC Portal

## Question Edit

1.1 Which of the following is the most appropriate imaging option for this patient?

A Nuclear medicine three phase bone scan (Tc-99m)

B Nuclear medicine tagged white blood cell study (WBC), (In-111)

C CT, foot without intravenous contrast

D CT, foot with intravenous contrast

E MRI, foot without and with intravenous contrast

Edit Arbitrary Text

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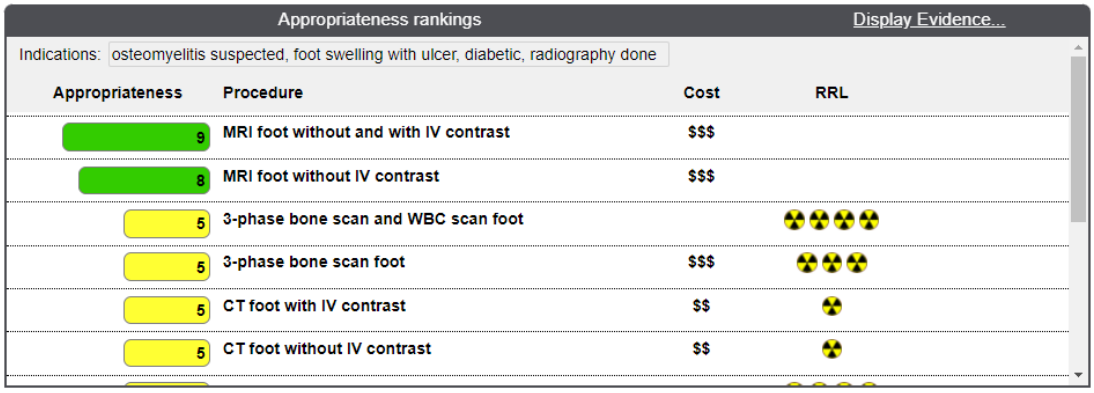
Explanation

## Scenario Edit

A 71-year-old woman with a history of diabetes mellitus presents six weeks after her initial presentation for a deep plantar foot ulcer. Despite routine wound care, the ulcer has progressed. You are concerned about osteomyelitis. There is no evidence of osteomyelitis on the follow-up foot x-rays and the patient has normal renal function (GFR >60).




## Question

1.1 Which of the following is the most appropriate imaging option for this patient?

You Selected **E: MRI, foot without and with intravenous contrast**

## Explanation

✔ **Correct. MRI would be the most appropriate examination. In a patient with normal renal function, intravenous contrast will provide additional information regarding the adjacent soft tissues, specifically the detection of an associated abscess.**

**For further information, click on the "Display Evidence" tab within the clinical decision support panel. There is a summary of literature review under the tables.**

**Estimated cost ranges based on Centers for Medicare and Medicaid (CMS) data.**

| | | | |
|---|---|---|---|
| $: from | 0.00 | up to | 100.00 |
| $$: from | 100.00 | up to | 250.00 |
| $$$: from | 250.00 | up to | 500.00 |
| $$$$: from | 500.00 | up to | 10000.00 |

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**Other explanations:**

✖ **Nuclear medicine three phase bone scan (Tc-99m)**

Incorrect. MRI would be the most appropriate examination. In a patient with normal renal function, intravenous contrast will provide additional information regarding the adjacent soft tissues, specifically the detection of an associated abscess.

✖ **Nuclear medicine tagged white blood cell study (WBC), (In-111)**

Incorrect. MRI would be the most appropriate examination. In a patient with normal renal function, intravenous contrast will provide additional information regarding the adjacent soft tissues, specifically the detection of an associated abscess.

✖ **CT, foot without intravenous contrast**

Incorrect. MRI would be the most appropriate examination. In a patient with normal renal function, intravenous contrast will provide additional information regarding the adjacent soft tissues, specifically the detection of an associated abscess. CT has a very limited role in the evaluation of osteomyelitis.

✖ **CT, foot with intravenous contrast**

Incorrect. MRI would be the most appropriate examination. In a patient with normal renal function, intravenous contrast will provide additional information regarding the adjacent soft tissues, specifically the detection of an associated abscess. CT has a very limited role in the evaluation of osteomyelitis.

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Case Example 2 Scenario:

https://cortex.acr.org/Presenters/CaseScript/CaseView?Info=WXls88jOJ7tAA%2bVWQFFBBIIfc8xBl3DdTejXl26hDD6SrxbFV317v2vZKFl7A%2b%2bA

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## Scenario Edit

A 45-year-old woman presents with elevated TSH. You palpate a 1 cm thyroid nodule on physical exam.

AC Portal

## Question Edit

1.1 Which of the following is the most appropriate imaging option for this patient?

A No imaging

B X-ray neck

C Ultrasound, neck

D CT, neck without contrast

E CT, neck with contrast

Edit Arbitrary Text

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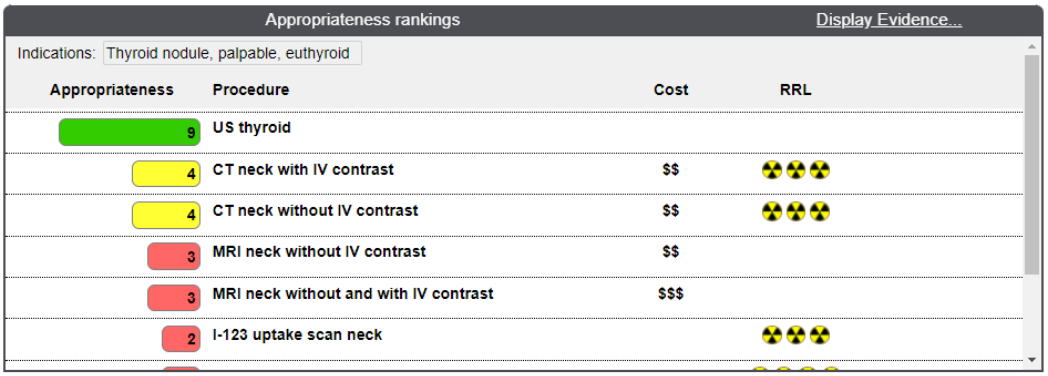
## Explanation

### Scenario Edit

A 45-year-old woman presents with elevated TSH. You palpate a 1 cm thyroid nodule on physical exam.




## Question

1.1 Which of the following is the most appropriate imaging option for this patient?

You Selected **C: Ultrasound, neck**

## Explanation

✔ **Correct. Given the presence of a nodule on physical exam, ultrasound would be recommended.**

**In the absence of a palpable thyroid nodule, a thyroid ultrasound would not be the most appropriate. Choosing Wisely: Thyroid ultrasound**

**For further information, click on the "Display Evidence" tab within the clinical decision support panel. There is a summary of literature review under the tables.**

**Information to share and discuss with the patient: RadiologyInfo.org**

**Estimated cost ranges based on Centers for Medicare and Medicaid (CMS) data.**

| | | | |
|---|---|---|---|
| $: from | 0.00 | up to | 100.00 |
| $$: from | 100.00 | up to | 250.00 |
| $$$: from | 250.00 | up to | 500.00 |
| $$$$: from | 500.00 | up to | 10000.00 |

**Click here to ask a Radiologist a question**

**Relevant Imaging 3.0 Case Studies:**

**Reducing Variability https://www.acr.org/Practice-Management-Quality-Informatics/Imaging-3/Case-Studies/Quality-and-Safety/Reducing-Variability**

**Other explanations:**

✖ **No imaging**

Incorrect. This would be the correct answer if no nodule was palpated.

Choosing Wisely: Thyroid ultrasound

Given the presence of possible nodule on physical exam, ultrasound would be recommended.

✖ **X-ray neck**

Incorrect. Given the presence of possible nodule on physical exam, ultrasound would be recommended.

✖ **CT, neck without contrast**

Incorrect. Thyroid ultrasonography (US) is the safest and most cost-effective way to image the thyroid gland and its pathology.

✖ **CT, neck with contrast**

Incorrect. Thyroid ultrasonography (US) is the safest and most cost-effective way to image the thyroid gland and its pathology.

Check your score

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Case Example 3 Scenario:

https://cortex.acr.org/Presenters/CaseScript/CaseView?Info=WXls88jOJ7vj3uEW7RL58g3qJrqhRQJBaqID7%2fFz4CWXCRvhlctDNL8KOJMZGDYs

## Scenario Edit

A 40-year-old woman presents with a 1-day history of right upper quadrant (RUQ) pain and fever. She has a positive Murphy's sign on physical exam and an elevated white blood cell (WBC) count. You suspect acute cholecystitis.

AC Portal

## Question Edit

1.1 Which of the following is the most appropriate imaging option for this patient?

A X-ray, abdomen

B Ultrasound, abdomen, right upper quadrant

C CT, abdomen without intravenous contrast

D CT, abdomen with and without intravenous contrast

E MRI, abdomen with and without intravenous contrast

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## Explanation

## Scenario Edit

A 40-year-old woman presents with a 1-day history of right upper quadrant (RUQ) pain and fever. She has a positive Murphy's sign on physical exam and an elevated white blood cell (WBC) count. You suspect acute cholecystitis.

Appropriateness rankings — Display Evidence...

Indications: RUQ pain, biliary disease suspected, initial imaging

| Appropriateness | Procedure | Cost | RRL |
|---|---|---|---|
| 9 | US abdomen | $$ | |
| 6 | CT abdomen with IV contrast | $$ | ☢☢☢ |
| 6 | MRI abdomen without and with IV contrast with MRCP | $$$ | |
| 5 | Nuclear medicine scan gallbladder | $$$ | ☢☢ |
| 5 | MRI abdomen without IV contrast with MRCP | $$$ | |
| 4 | CT abdomen without IV contrast | $$ | ☢☢☢ |

## Question

1.1 Which of the following is the most appropriate imaging option for this patient?

You Selected **B: Ultrasound, abdomen, right upper quadrant**

## Explanation

✔ **Correct. Ultrasound provides the most appropriate initial evaluation with high sensitivity and positive predictive value (PPV) for cholecystitis. There is an added advantage of no radiation exposure for the patient.**

**For further information, click on the "Display Evidence" tab within the clinical decision support panel. There is a summary of literature review under the tables.**

**Image Wisely:** Radiation safety **(Pledge today)**

**Information to share and discuss with the patient:** Radiologyinfo.org

**Estimated cost ranges based on Centers for Medicare and Medicaid (CMS) data.**

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**Other explanations:**

✖ **X-ray, abdomen**

Incorrect. An x-ray would evaluate for calcified gallstones, free air and ileus. It would not directly evaluate for acute cholecystitis.

✖ **CT, abdomen without intravenous contrast**

Incorrect. Ultrasound provides the most appropriate initial evaluation with high sensitivity and positive predictive value (PPV) for cholecystitis. There is an added advantage of no radiation exposure for the patient. CT is also more expensive and exposes the patient to ionizing radiation.

✖ **CT, abdomen with and without intravenous contrast**

Incorrect. Ultrasound provides the most appropriate initial evaluation with high sensitivity and positive predictive value (PPV) for cholecystitis. There is an added advantage of no radiation exposure for the patient. CT is also more expensive and exposes the patient to ionizing radiation.

✖ **MRI, abdomen with and without intravenous contrast**

Incorrect. Ultrasound provides the most appropriate initial evaluation with high sensitivity and positive predictive value (PPV) for cholecystitis. There is an added advantage of no radiation exposure for the patient. MRI is also more expensive and takes longer to obtain.

Check your score