

Recurrent Abdominal Wall Abscesses

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RAD 4001 Diagnostic Radiology

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Clinical History

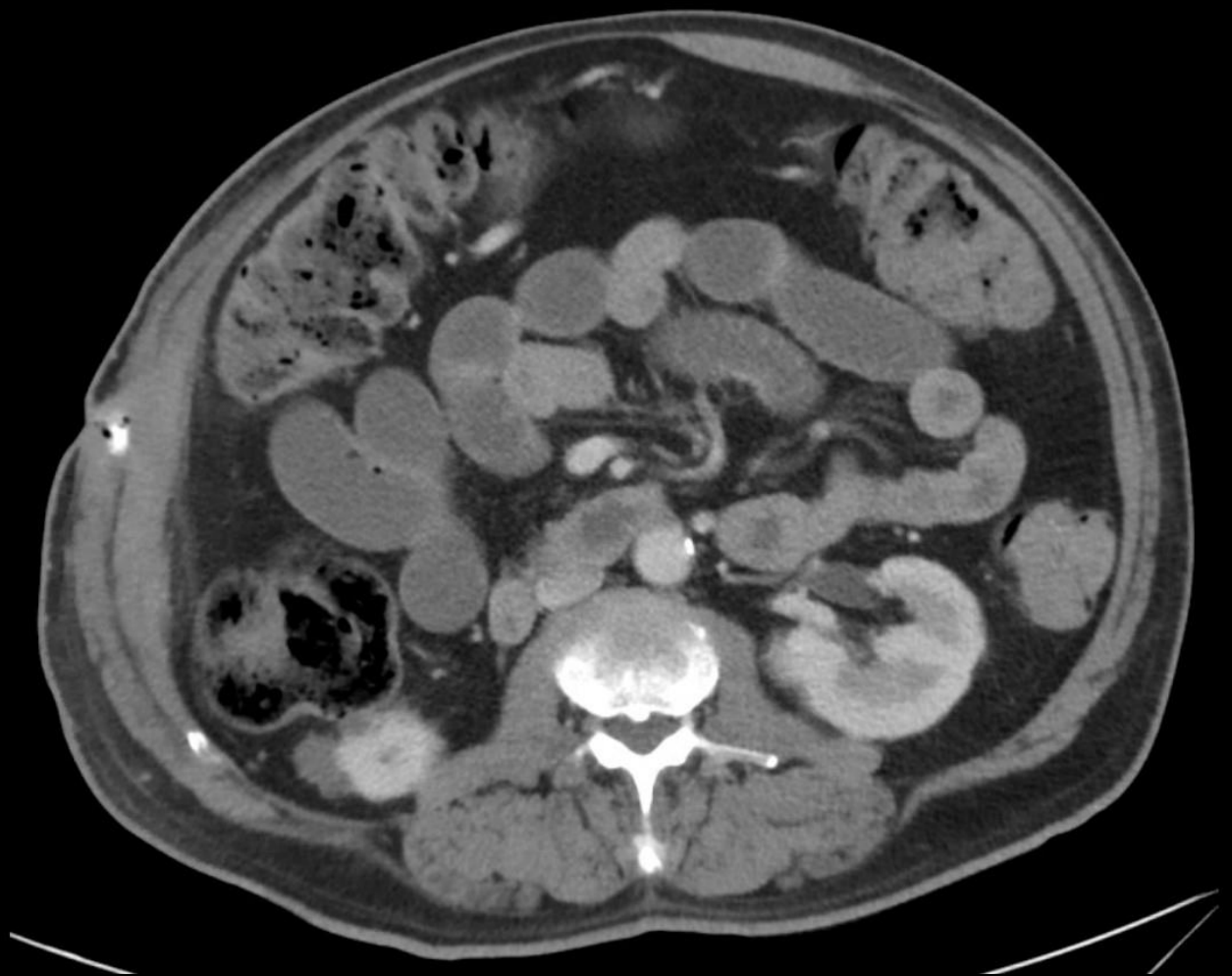
- 64yo M with PMH of HTN, DM, COVID+ (8/2020, currently negative), and TB s/p RIPE c/b necrotizing pneumonia requiring R lobectomy and thoracotomy in 2018
- Since 2018, post-operative course has been complicated by recurrent RUQ abdominal wall abscesses requiring multiple hospitalizations for IR drainage
 - June 2020: RUQ wall abscess grew Pseudomonas
 - August 2020: RUQ wall abscess grew Klebsiella
- Patient has had a documented allergic-like reaction to iodinated contrast
 - Severe anaphylactic reaction which required endotracheal intubation

ED Course

- Patient presented to the ED with worsening abdominal pain, increased foul smelling purulent drainage from RUQ abdominal wall abscess, chills, and fevers
- Empiric Cefepime and Flagyl was started based on culture history
- CT of the Chest/Abdomen/Pelvis without contrast and an Abdominal US were obtained



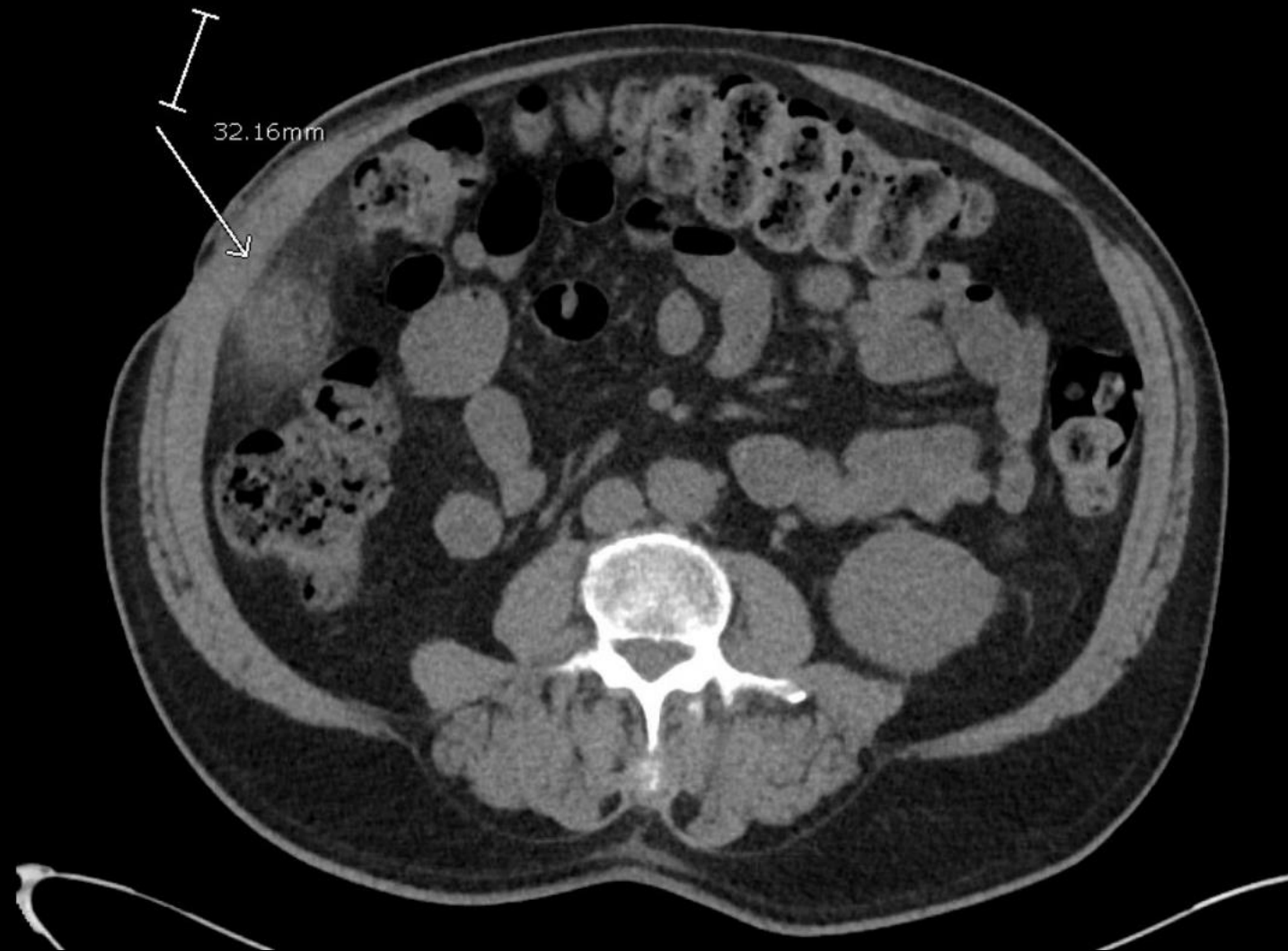
CT Abdomen/Pelvis w/o Contrast 03/13/20



CT Abdomen/Pelvis w/o Contrast 06/05/20



CT Abdomen/Pelvis w/o Contrast 08/13/20



CT Abdomen/Pelvis w/o Contrast 09/29/20



Image 65

CT Abdomen/Pelvis w/o Contrast 09/29/20

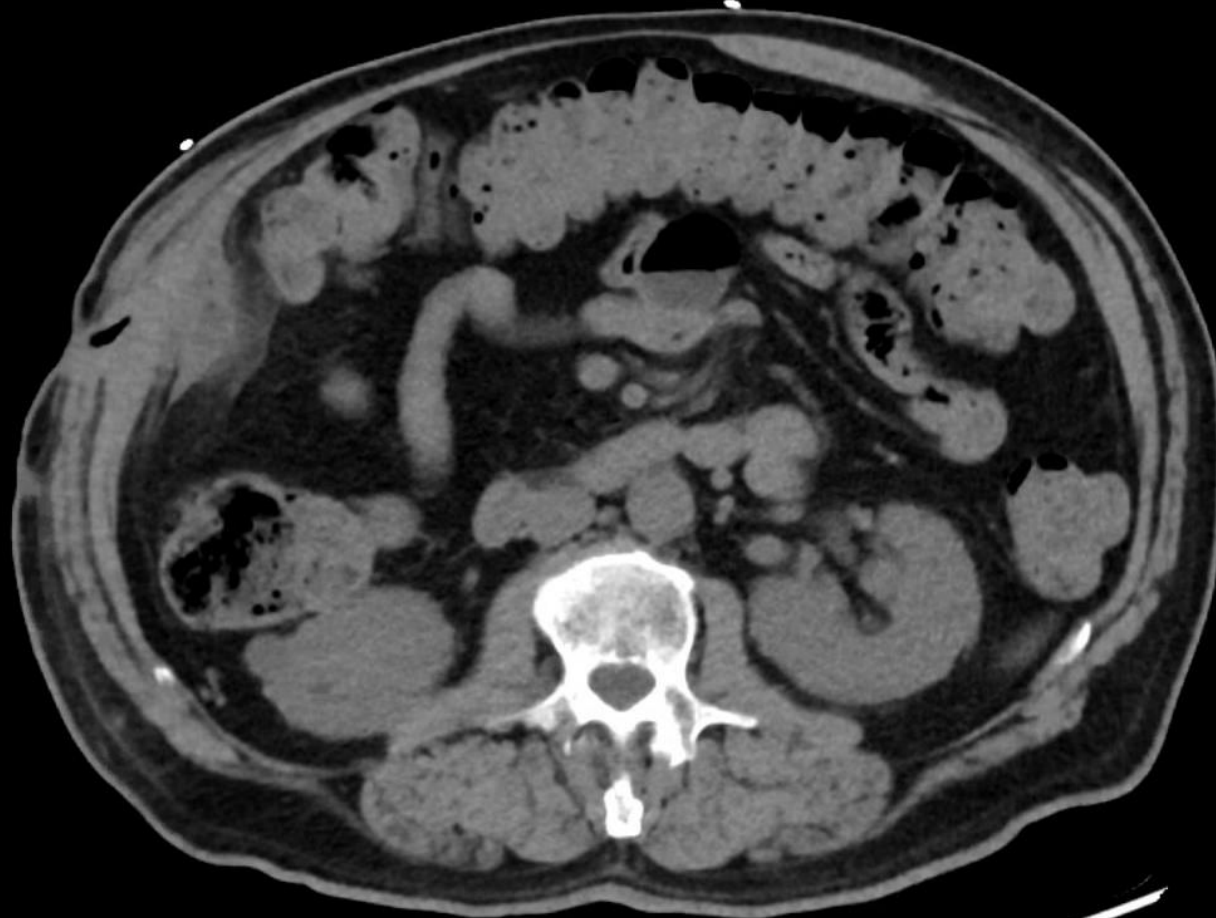


Image 66

CT Abdomen/Pelvis w/o Contrast 09/29/20



Image 67

CT Abdomen/Pelvis w/o Contrast 09/29/20



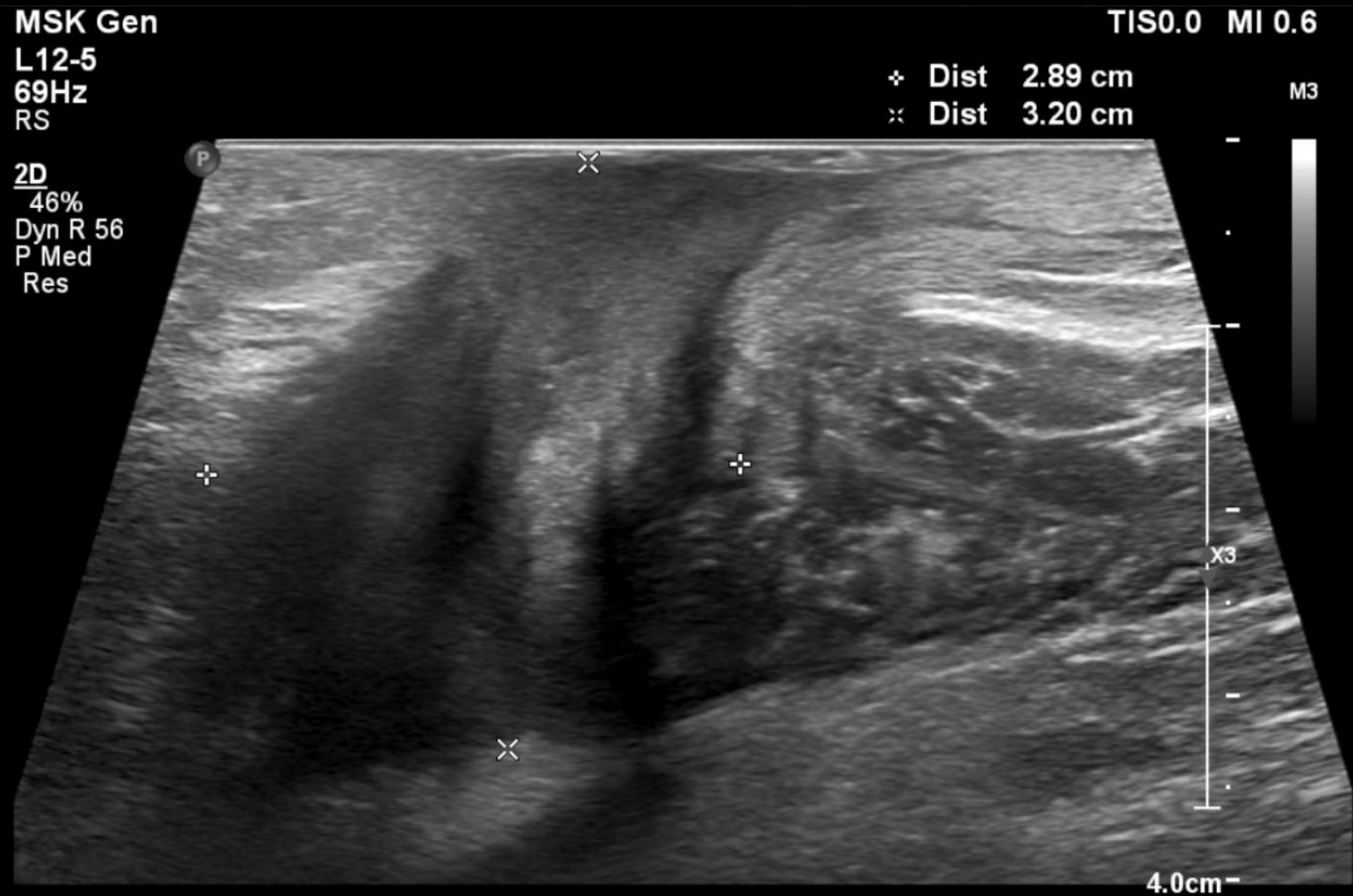
Image 68

CT Abdomen/Pelvis w/o Contrast 09/29/20



Image 77

Abdominal US 10/03/20



RLQ PALP AOI LONG

MCGOVERN MEDICAL SCHOOL

Key Imaging Findings

- CT Abd/Pelvis shows inflammation and gas along the right anterolateral abdominal wall defect, which extends to the abdominal cavity with focal fluid collection
 - Comparison to prior images demonstrates interval worsening of the adjacent fat stranding and inflammatory changes with extension of the redeveloping abscess
 - Because of contrast allergy, evaluation was limited, so some question about source of abscess remains
- Abdominal US shows mixed hypoechoic and anechoic complex fluid collection and intraperitoneal extension cannot be ruled out
 - Highly suspicious for abscess and phlegmon formation

Differential Diagnosis

- Soft tissue abscess 2/2 external source
- Enterocutaneous fistula causing recurrent abscesses
- Presence of foreign body

Further Admission Course

- ID workup was negative, including wound, blood, and urine cultures
- General Surgery recommended against surgical intervention
- IR placed an 8Fr drain on 10/05 for drainage, which was pulled when drainage was $<10\text{cc}/24\text{hrs}$



ABDOMINAL DRAIN PLMNT 8FR 25CM DAWSON

Final Diagnosis

Recurrent soft tissue abscess 2/2 external source

Discussion

- Final diagnosis: soft tissue abscess 2/2 external source
 - Wound healing is likely c/b chronic DM
- Foreign body was ruled out by CT
- Enterocutaneous fistula remained a concern, due to previous culture results and because patient was unable to be evaluated with iodinated contrast
 - Wound culture was negative for this admission
 - Decreasing drainage from drain suggests that a fistula is less likely
 - Radiology suggested using dilute barium contrast for a fistulogram, which could be done as future evaluation if abscess recurs
 - Future surgical intervention to debride the wound bed may be required

ACR Appropriateness Criteria [1]

- On initial presentation, the ACR recommends X-ray or US as the initial imaging study
- Because of the concern for extension into the abdominal cavity, axial imaging is needed
- Contrast allergy precludes giving IV contrast in this patient

Variant 1: Soft-tissue mass. Superficial or palpable. Initial imaging study.

Procedure	Appropriateness Category	Relative Radiation Level
X-ray area of interest	Usually Appropriate	Varies
US area of interest	Usually Appropriate	0
MRI area of interest without IV contrast	May Be Appropriate (Disagreement)	0
CT area of interest with IV contrast	Usually Not Appropriate	Varies
CT area of interest without and with IV contrast	Usually Not Appropriate	Varies
CT area of interest without IV contrast	Usually Not Appropriate	Varies
FDG-PET/CT area of interest	Usually Not Appropriate	⊕⊕⊕⊕
MRI area of interest without and with IV contrast	Usually Not Appropriate	0

Variant 3: Soft-tissue mass. Nondiagnostic initial evaluation (ultrasound and/or radiograph). Next imaging study.

Procedure	Appropriateness Category	Relative Radiation Level
MRI area of interest without and with IV contrast	Usually Appropriate	0
MRI area of interest without IV contrast	Usually Appropriate	0
CT area of interest with IV contrast	May Be Appropriate (Disagreement)	Varies
CT area of interest without IV contrast	May Be Appropriate	Varies
CT area of interest without and with IV contrast	Usually Not Appropriate	Varies
FDG-PET/CT area of interest	Usually Not Appropriate	⊕⊕⊕⊕

Continued Discussion

- Contrast Reactions [2]
 - Allergic-like reactions include: urticaria, pruritus, edema, erythema, bronchospasm, hypotension, shock
 - Physiologic reactions include: nausea, vomiting, arrhythmia, seizure
- Prevalence of hypersensitivity reactions to iodinated contrast media is estimated between 0.05-0.1% [3]
- Studies have shown that there is no link between a shellfish allergy and an allergic-like reaction to iodinated contrast [4]
- Cross-reactivity to gadolinium contrast is extremely rare but has been observed [3]
- Patients who have a severe reactions should NOT be given iodinated contrast [2]
 - Mild and moderate allergic-like reactions should be pre-medicated with corticosteroids

ADULT

CODE BLUE #:

EXAMPLE PREMEDICATION REGIMENS

Methylprednisolone 32 mg PO 12, 2 hrs prior +/- Benadryl 50 mg PO 1 hr prior.
OR
 Prednisone 50 mg PO 13, 7, 1 hours prior +/- Benadryl 50 mg PO 1 hr prior.
OR
 Hydrocortisone 200 mg IV 5 hrs and 1 hr prior and Benadryl 50 mg IV 1 hr prior.
 (urgent, NPO only, ER, inpatient)

CONTRAST EXTRAVASATION

Elevate arm (heart level), apply cool compress, remove rings. Observe. Consider surgical consultation for decreased perfusion, sensation, strength, active range of motion, or increasing pain.

Document reaction & monitor for return of symptoms post-treatment

HIVES/DIFFUSE ERYTHEMA

1. Observation; monitor vitals q 15 min. Preserve IV access.
2. If associated with hypotension or respiratory distress then considered **Anaphylaxis**:
 - O₂ 6-10 L/min by face mask
 - IVF 0.9% NS wide open; elevate legs > 60°
 - Epinephrine 0.3 mL of 1mg/mL IM (or auto-injector) OR Epinephrine 1 mL of 1mg/10mL (0.1 mg/mL) IV with slow flush or IV fluids
 - Call 911 or CODE BLUE
3. If **ONLY** skin findings but severe or progressive may consider Benadryl 50 mg PO, IM, IV but may cause or worsen hypotension.

ADULT

HYPOTENSION WITH TACHYCARDIA (ANAPHYLAXIS)

1. Preserve IV access, monitor vitals q 15m
2. O₂ 6-10 L/min by face mask
3. Elevate legs > 60°
4. IVF 0.9% NS wide open
5. Epinephrine 0.3 mL of 1mg/mL IM (or auto-injector) OR Epinephrine 1 mL of 1mg/10mL (0.1 mg/mL) IV with slow flush or IV fluids
6. Call 911 or CODE BLUE

LARYNGEAL EDEMA (INSPIRATORY STRIDOR)

1. Preserve IV access, monitor vitals
2. O₂ 6-10 L/min by face mask
3. Epinephrine 0.3 mL of 1mg/mL IM (or auto-injector) OR Epinephrine 1 mL of 1mg/10mL (0.1 mg/mL) IV with slow flush or IV fluids
4. Call 911 or CODE BLUE

HYPOTENSION WITH BRADYCARDIA

1. Preserve IV access; monitor vitals
2. O₂ 6-10 L/min by face mask
3. Elevate legs > 60°
4. IVF 0.9% NS wide open
5. Atropine 0.6-1.0 mg IV if refractory
6. Consider calling 911 or CODE BLUE

BRONCHOSPASM (EXPIRATORY WHEEZE)

1. Preserve IV access, monitor vitals
2. O₂ 6-10 L/min by face mask
3. Beta-2 agonist inhaler 2 puffs; repeat x 3
4. If not responding or severe, then use Epinephrine 0.3 mL of 1mg/mL IM (or auto-injector) OR Epinephrine 1 mL of 1mg/10mL (0.1 mg/mL) IV with slow flush or IV fluids
5. Call 911 or CODE BLUE

The content of this card is for reference purposes only and is not intended to substitute for the judgment and expertise of the physician or other user. User is responsible for verifying currency and applicability of content to clinical situation and assumes all risk of use.
www.acr.org/contrast

<https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast-Reaction-Card-Adult.pdf>

Take Home Points

- Abscesses require source control for adequate treatment
- Abscesses that extend into the abdomen should ideally be evaluated using contrast
 - Contrast reactions are not uncommon, so these studies should be done in a setting that can manage severe reactions like airway edema or hypotensive shock, should they occur
- Individuals who have had a prior severe reaction to iodinated contrast media should NOT be given iodinated contrast in the future, instead alternate imaging modalities should be considered

References

1. American College of Radiology. ACR Appropriateness Criteria: Soft Tissue Masses. Updated 2017. Accessed at <https://acsearch.acr.org/docs/69434/Narrative/>
2. UpToDate. Patient evaluation prior to oral or iodinated intravenous contrast for computed tomography. Updated 24 January 2018. Accessed at <https://www.uptodate.com/contents/patient-evaluation-prior-to-oral-or-iodinated-intravenous-contrast-for-computed-tomography>
3. Rosado Ingelmo A, Doña Diaz I, Cabañas Moreno R, Moya Quesada MC, García-Avilés C, García Nuñez I, Martínez Tadeo JI, Mielgo Ballesteros R, Ortega-Rodríguez N, Padial Vilchez MA, Sánchez-Morillas L, Vila Albelda C, Moreno Rodilla E, Torres Jaén MJ. Clinical Practice Guidelines for Diagnosis and Management of Hypersensitivity Reactions to Contrast Media. *J Investig Allergol Clin Immunol*. 2016;26(3):144-55.
4. Schabelman E, Witting M. The relationship of radiocontrast, iodine, and seafood allergies: a medical myth exposed. *J Emerg Med*. 2010 Nov;39(5):701-7.
5. American College of Radiology. Contrast Reactions Card Adult. Accessed at <https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast-Reaction-Card-Adult.pdf>



Questions?