

 **zukureview**  **SAVE & EXIT**

 **PREV**

**NEXT** 

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

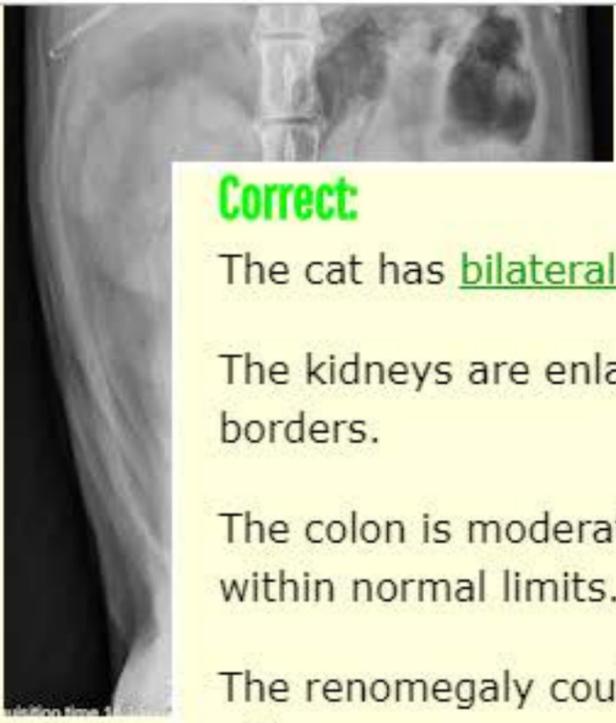
An 11-year-old cat is presented for vomiting.

Which of the following choices is **evident** on these radiographs?





Linear foreign body	HIDE
Splenomegaly	HIDE
Megacolon	HIDE
Renomegaly	HIDE
Hepatomegaly	HIDE



**Correct:**

The cat has [bilateral renomegaly](#). In the abdomen, there is adequate serosal detail.

The kidneys are enlarged bilaterally. Nephroliths are present bilaterally with irregular borders.

The colon is moderately feces and gas filled. The remainder of the abdomen cavity is within normal limits.

The renomegaly could be caused by lymphoma, polycystic kidney disease, inflammatory process, or obstruction. Polycystic kidney disease was diagnosed on ultrasound.

Click here to see [the renal ultrasound](#).

Click here to see [normal feline abdominal radiographs](#).

- Linear f
- Splenom
- Megacol

Renomegaly	HIDE
Hepatomegaly	HIDE

NEXT



PREV NEXT

1 ✓	2	3	4	5	6	7	8	9	10
-----	---	---	---	---	---	---	---	---	----

A 13-year-old Labrador retriever is presented with a large subcutaneous mass on its abdomen.

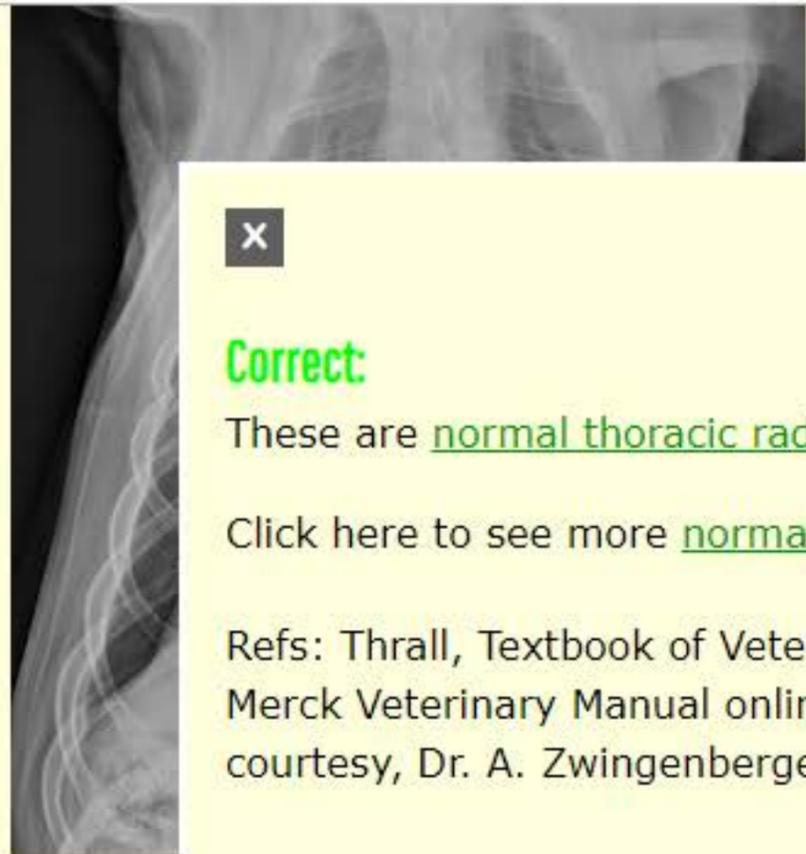
Which one of the following choices can be discerned from the thoracic radiographs?





Cranial mediastinal mass	HIDE
Normal radiographs	HIDE
Hilar lymphadenopathy	HIDE
Pleural effusion	HIDE
Chronic pneumonia	HIDE

BACK    NEXT    LEAVE BLANK



**Correct:**  
These are [normal thoracic radiographs](#).  
Click here to see more [normal canine thoracic radiographs](#).  
Refs: Thrall, Textbook of Veterinary Diagnostic Radiology 6<sup>th</sup> ed. pp. 474-88 and the Merck Veterinary Manual online edition. Radiographic interpretation and images courtesy, Dr. A. Zwingenberger and [Veterinary Radiology](#).

Cranial	
Normal	
Hilar lymphadenopathy	HIDE
Pleural effusion	HIDE
Chronic pneumonia	HIDE

BACK NEXT

 **zukureview**  **SAVE & EXIT**

[PREV](#)

[NEXT](#)

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

How early is it possible to determine pregnancy in horses by **ultrasonic transrectal** examination?

28 days of gestation	HIDE
11 days of gestation	HIDE
20 days of gestation	HIDE
45 days of gestation	HIDE

[BACK](#)   [NEXT](#)   [LEAVE BLANK](#)

 Overview    Mark this Question    Lab Values    Definitions    Report a Problem



PREV

1

How earl  
examina

- 28 days
- 11 days
- 20 days
- 45 days

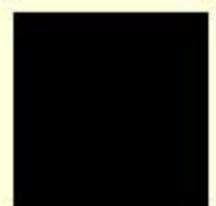
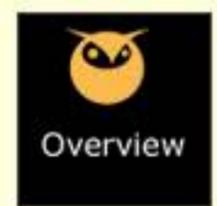
**Correct:**

After 11 days of gestation it is possible to detect pregnancy in mare with using 3-5MHz linear array transducer transrectally.

Tighe & Brown, Mosby's Comprehensive Review for Vet Techs, 3<sup>rd</sup> ed. Pp 199

BACK

NEXT



 **zukureview**  **SAVE & EXIT**

[PREV](#)

[NEXT](#)

1 ✓	2 ✓	3 ✓	4	5	6	7	8	9	10
-----	-----	-----	---	---	---	---	---	---	----

Which one of the following choices is typically **anechoic** (sonolucent) on ultrasound?

Urinary bladder	HIDE
Adrenal gland	HIDE
Liver	HIDE
Spleen	HIDE
Bone	HIDE

[BACK](#)   [NEXT](#)   [LEAVE BLANK](#)

 Overview    Mark this Question    Lab Values    Definitions    Report a Problem



PREV

1

Which or

- Spleen
- Adrenal
- Liver
- Bone
- Urinary bladder

Correct:

The fluid-filled urinary bladder is typically anechoic (sonolucent). Anechoic or sonolucent structures produce few or no echoes. Both are DARK on ultrasound.

In order from most echogenic (sonodense) to least echogenic tissues (when normal): bone, spleen, liver. Echogenic or sonodense structures produce strong echoes, so these are bright on the ultrasound image.

Hyperechoic structures produce more echoes than nearby structures. Hypoechoic structures produces fewer echoes than nearby structures. So, liver is hypoechoic compared to bone.

Refs: Tighe & Brown, Mosby's Comprehensive Review for Vet Techs, 3rd ed., p. 197.

BACK NEXT

- Overview
- Mark this Question
- Lab Values
- Definitions
- Report a Problem

 **zukureview**  **SAVE & EXIT**

[< PREV](#) [NEXT >](#)

1 ✓	2 ✓	3 ✓	4 M ✓	5	6	7	8	9	10
-----	-----	-----	-------	---	---	---	---	---	----

When obtaining an x-ray of a joint, what should be included in the image?

All joints in the limb	HIDE
Joint plus the nearest body cavity	HIDE
Joint only	HIDE
Each bone of the joint should be radiographed individually	HIDE
Joint plus 1/3 of long bones proximal and distal to joint	HIDE

[BACK](#) [NEXT](#) [LEAVE BLANK](#)

 Overview  Mark this Question  Lab Values  Definitions  Report a Problem

English (United States)  
US keyboard  
To switch input methods, press Windows key+Space.



PREV

1

When ob

All joint:

Joint plu

Joint on

Each bo

Joint plus 1/3 of long bones proximal and distal to joint



Correct:

When obtaining an x-ray of a joint, include the **desired joint plus 1/3 of the long bones proximal and distal to the joint.**

When **obtaining an x-ray of a long bone,** include **the joints proximal and distal to the long bone.**

Refs: Refs: McCurnin and Bassert, Clinical Textbook for Veterinary Technicians, 9<sup>th</sup> ed. pp. 505-6.

BACK

NEXT



 **zukureview**  **SAVE & EXIT**

[< PREV](#) [NEXT >](#)

1 ✓	2 ✓	3 ✓	4 M ✓	5 M ✓	6	7	8	9	10
-----	-----	-----	-------	-------	---	---	---	---	----

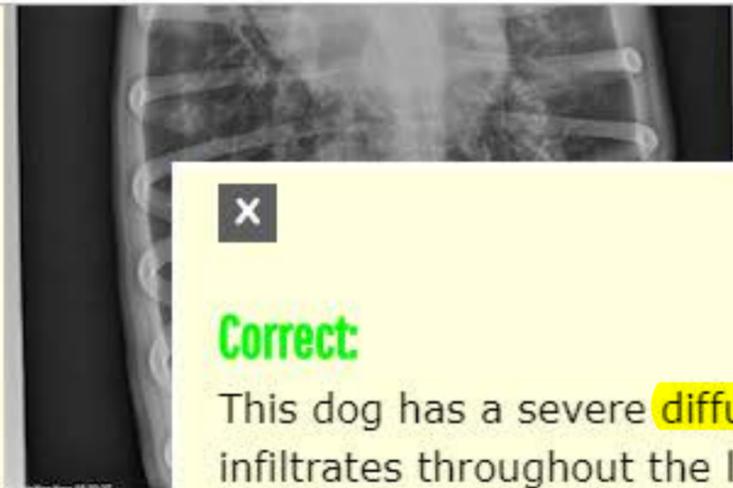
A 2-year-old male neutered giant Schnauzer is presented with a productive cough of 2-weeks duration. Bloodwork revealed eosinophilia; thoracic radiographs are shown below.

Which one of the following choices best describes the radiographic findings?





Hilar lymphadenopathy	HIDE
Heartworm infection	HIDE
Aspiration pneumonia	HIDE
Megaesophagus	HIDE
Bronchial pattern	HIDE



**Correct:**

This dog has a severe **diffuse bronchial pattern**, with peribronchial and interstitial infiltrates throughout the lungs.

No lymphadenopathy is visible. The cardiovascular structures appear normal, and there are no abnormalities in the mediastinum or pleural space.

Peripheral eosinophilia and the bronchointerstitial pattern resolved with treatment for **lungworm** using fenbendazole.

Click here to see [normal canine thoracic radiographs](#).

Refs: Cote, Clinical Veterinary Advisor-Dogs and Cats, 3<sup>rd</sup> ed. pp. 603-5 and the

- Hilar lymphadenopathy
- Heartworm
- Aspirated foreign body
- Megaesophagus
- Bronchitis**

BACK NEXT

- Overview
- Mark this Question
- Lab Values
- Definitions
-

 **zukureview**  **SAVE & EXIT**

[< PREV](#) [NEXT >](#)

1 ✓	2 ✓	3 ✓	4 M ✓	5 M ✓	6 ✓	7	8	9	10
-----	-----	-----	-------	-------	-----	---	---	---	----

What is the effect of a high-ratio grid on an x-ray exposure?

Less mAs needed	HIDE
Loss of film resolution	HIDE
Darker x-rays	HIDE
Fewer X-rays reach the film	HIDE
More x-rays pass through to the animal	HIDE

[BACK](#) [NEXT](#) [LEAVE BLANK](#)

 Overview  Mark this Question  Lab Values  Definitions  Report a Problem



PREV

1

What is t

Less mA

Loss of t

Darker

Fewer X

More X-rays pass through to the animal

**Correct: Fewer X-rays reach the film**

A grid is like the focusing lens in a camera. A high-ratio grid permits FEWER x-rays to pass through it from the animal (fewer X-rays reach the film), but you get a better, more high-resolution radiograph.

The grid prevents scattered radiation from reaching an x-ray film, so that only the primary, directly aimed x-rays penetrate straight into the animal for the best image.

An x-ray grid is basically a plate made of alternating strips of lead, which block scattered x-rays, interspersed between strips of plastic or aluminum, which allow the straight x-rays through.

Refs: Bassert and Thomas, McCurnin's Clinical Textbook for Veterinary Technicians,

BACK

NEXT



1	2	3	4 <sup>M</sup>	5 <sup>M</sup>	6	7	8	9	10
---	---	---	----------------	----------------	---	---	---	---	----

A 5 month old male Saint Bernard dog is presented with lameness of the right forelimb.

If there is a problem visible in this canine radiograph, what is it?



Esophageal placement of endotracheal tube	HIDE
Cervical vertebral dislocation	HIDE
Salter II physeal fracture	HIDE
There is no abnormality	HIDE
Osteochondrosis, caudal humeral head	HIDE

A 5 month old male Saint Bernard dog is presented with lameness of the right forelimb.  
If there is a problem visible in this canine radiograph, what is it?



**Correct:**

Think of osteochondrosis (OC, or OCD) with a **shoulder lameness** in a young (4-10 mo), male (3x more likely than female), fast-growing, **large breed** dog; **bilateral** in **51%**.

Refs: Pasquini's, Tschauner's Guide to Sm An Clin, vol 1, 2<sup>nd</sup> ed. pp. 604, 610-11 and Blackwell's 5-Minute Vet Consult Canine Feline, 4<sup>th</sup> ed. pp.1002-3 and the Merck Veterinary Manual online edition. Image courtesy of Dr. Scot Nachbar

Esophag

Cervical

Salter II physeal fracture	HIDE
There is no abnormality	HIDE
Osteochondrosis, caudal humeral head	HIDE

BACK

NEXT

 **zukureview**  **SAVE & EXIT**

[< PREV](#) [NEXT >](#)

1 ✓	2 ✓	3 ✓	4 M ✓	5 M ✓	6 ✓	7 ✓	8 ✗	9	10
-----	-----	-----	-------	-------	-----	-----	-----	---	----

Which one of these contrast media is radiolucent?

Air	HIDE
Iodine	HIDE
Barium	HIDE
Thorium	HIDE
Diatrizoate	HIDE

[BACK](#) [NEXT](#) [LEAVE BLANK](#)

 Overview  Mark this Question  Lab Values  Definitions  Report a Problem



PREV

1

Which of the following is radiolucent?

- Air
- Iodine
- Barium
- Thorium
- Diatrizoate

Correct:

**Air** (and other gases like carbon dioxide, nitrous oxide) are radiolucent (clear).

They do not absorb any x-rays so gas is seen as black on radiographs.

Follow this link to see an image with [air used as contrast in the bladder](#) (pneumocystogram).

**Barium and iodine** can be **used as radiopaque positive contrast media**.

**Radiopaque media** appear white on radiographs because of high x-ray absorption rate.

Follow this link to see a [radio-opaque contrast media used in the bladder](#).

Refs: McCurnin & Bassett. Clinical Textbook for Vet Technicians. 8th ed. pp. 547-50

BACK NEXT





**Transitional cell carcinoma, canine bladder, pneumocystogram**



Courtesy of Ontario Veterinary College.

Transitional cell carcinoma in trigone area of canine bladder, pneumocystogram.



### Transitional cell carcinoma, canine bladder, contrast radiograph



Courtesy of Ontario Veterinary College.

Transitional cell carcinoma in trigone area of canine bladder, contrast radiograph.

 **zukureview**  **SAVE & EXIT**

PREV < > NEXT

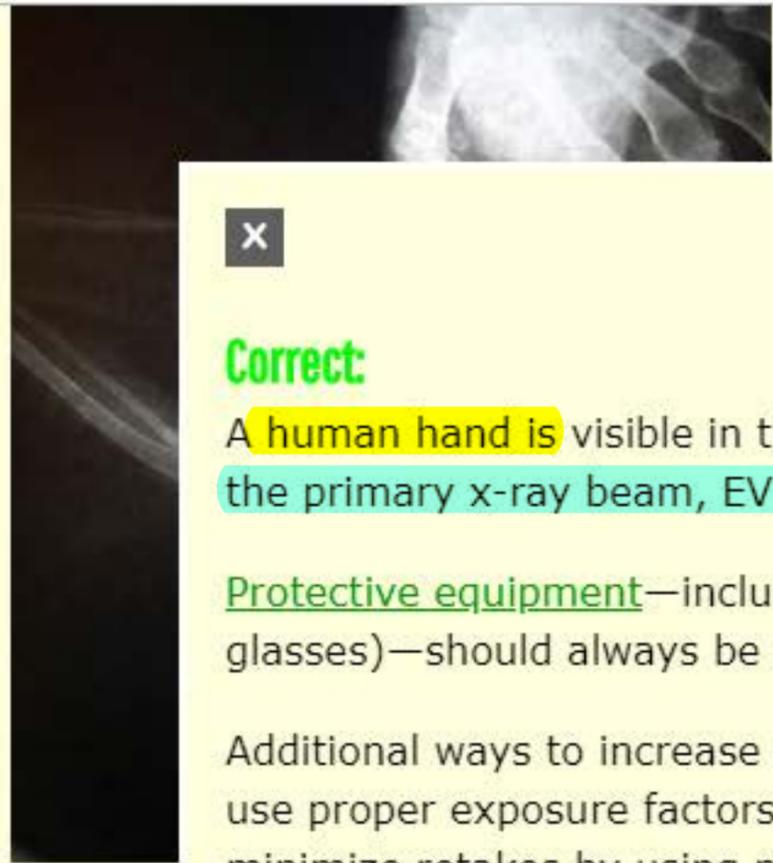
1 ✓	2 ✓	3 ✓	4 M ✓	5 M ✓	6 ✓	7 ✓	8 ✗	9 ✓	10
-----	-----	-----	-------	-------	-----	-----	-----	-----	----

What is the most critical **problem** with this radiograph of a bird?





Poorly collimated	HIDE
Underexposed	HIDE
Improper positioning of bird	HIDE
Human hand is in image	HIDE
Overexposed	HIDE



**Correct:**

A human hand is visible in this radiograph. No part of the holder's body should be in the primary x-ray beam, EVEN if covered by lead.

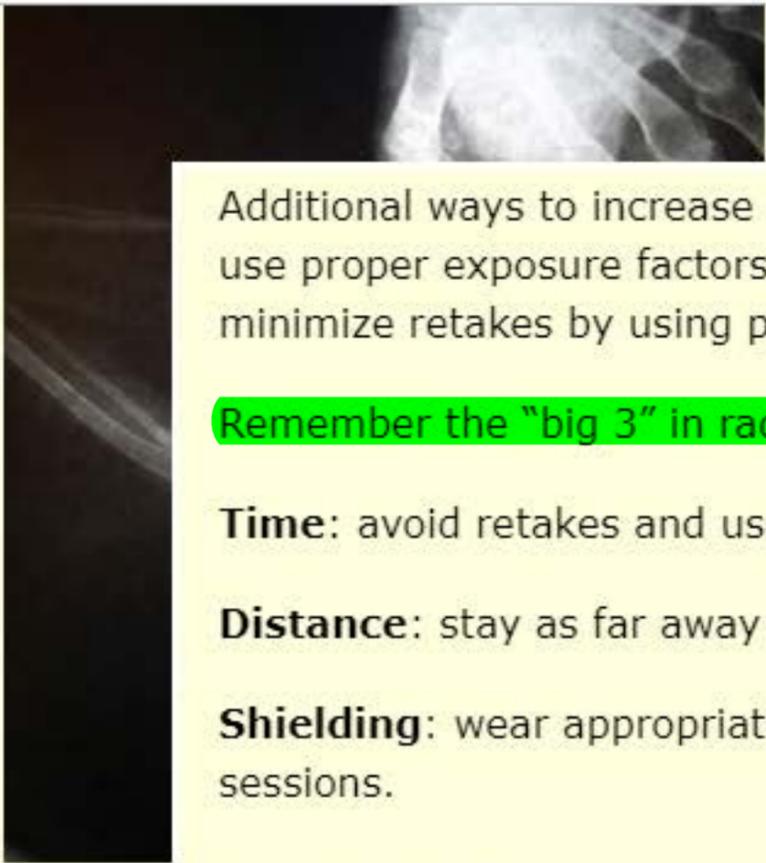
Protective equipment—including lead apron, gloves, and thyroid shield (+/- lead glasses)—should always be utilized when taking radiographs.

Additional ways to increase protection include: always collimate, use aluminum filter, use proper exposure factors, use cassette holders/restraining devices, and try to minimize retakes by using proper positioning the first time.

Remember the "big 3" in radiation protection: time, distance, and shielding:

Underexposed	HIDE
Human hand is in image	HIDE
Overexposed	HIDE
Poorly collimated	HIDE
Improper positioning of bird	HIDE

BACK NEXT



Additional ways to increase protection include: always collimate, use aluminum filter, use proper exposure factors, use cassette holders/restraining devices, and try to minimize retakes by using proper positioning the first time.

Remember the "big 3" in radiation protection: time, distance, and shielding:

**Time:** avoid retakes and use lowest possible mAs.

**Distance:** stay as far away from the x-ray beam as possible.

**Shielding:** wear appropriate protective gear and take care of the gear in between sessions.

Refs: Thrall, Textbook of Veterinary Diagnostic Radiology 6<sup>th</sup> ed. pp. 6-8, McCurnin's Clinical Textbook for Veterinary Technicians, 8<sup>th</sup> ed., pp. 524-45, and the Merck Veterinary Manual online. Image courtesy of Julie R.

Underexposed

Human hand is in image

Overexposed

Poorly collimated

Improper positioning of bird

BACK

NEXT

 **zukureview**  **SAVE & EXIT**

[PREV](#)

[NEXT](#)

11	12	13	14	15	16	17	18	19	20
----	----	----	----	----	----	----	----	----	----

Which one of the following choices is the best first step to diagnose diaphragmatic hernia in a cat (or a dog)?

Thoracocentesis	HIDE
Barium series	HIDE
Radiography	HIDE
Ultrasound	HIDE
Abdominocentesis	HIDE

[BACK](#)   [NEXT](#)   [LEAVE BLANK](#)

 Overview    Mark this Question    Lab Values    Definitions    Report a Problem



**Correct: Radiography**

The best way to confirm a **diaphragmatic hernia** is with thoracic (or sometimes abdominal) **radiography**. As a **second** step, a **contrast study of the GI** tract may show stomach or intestine in the thoracic region.

The use of ultrasound techniques such as Focused Assessment with Sonography for Trauma (a.k.a., "FAST") to diagnose acute thoracic trauma in dogs and cats is on the rise in emergency clinics.

Refs: Cote, Clinical Veterinary Advisor-Dogs and Cats, 3<sup>rd</sup> ed. pp. 275-6 and the Merck Veterinary Manual online edition.

Thoraco  
Barium  
Radiogr  
Ultrasou  
Abdominocentesis HIDE

[BACK](#) [NEXT](#)

-   
Overview
-   
Mark this Question
-   
Lab Values
-   
Definitions
-   
Report a Problem

 **zukureview**  **SAVE & EXIT**

[PREV](#)

[NEXT](#)

11	12	13	14	15	16	17	18	19	20
----	----	----	----	----	----	----	----	----	----

What kind of **body structure** can **cause the ultrasound artifact** known as **shadowing**?

Lungs	HIDE
Spleen	HIDE
Heart muscle	HIDE
Uroliths	HIDE
Normal gall bladder	HIDE

[BACK](#)   [NEXT](#)   [LEAVE BLANK](#)

 Overview    Mark this Question    Lab Values    Definitions    Report a Problem



PREV  
11

**Correct: Uroliths**

**Shadowing** occurs when ultrasound waves hit highly reflective structures like uroliths (e.g., bladder stones).

What kind

**Acoustic shadowing** is a dark area distal to the highly dense material.

Lungs

Basically, stones (or bone) block the ultrasound beam.

Spleen

Refs: Bassert and Thomas, McCurnin's Clinical Textbook for Veterinary Technicians, 8<sup>th</sup> ed. pp. 554-5 and the Merck Veterinary Manual online edition.

Heart m

**Uroliths**

Normal

BACK

NEXT



 **zukureview**  **SAVE & EXIT**

 **PREV**

**NEXT** 

11 	12 	13	14	15	16	17	18	19	20
--	--	----	----	----	----	----	----	----	----

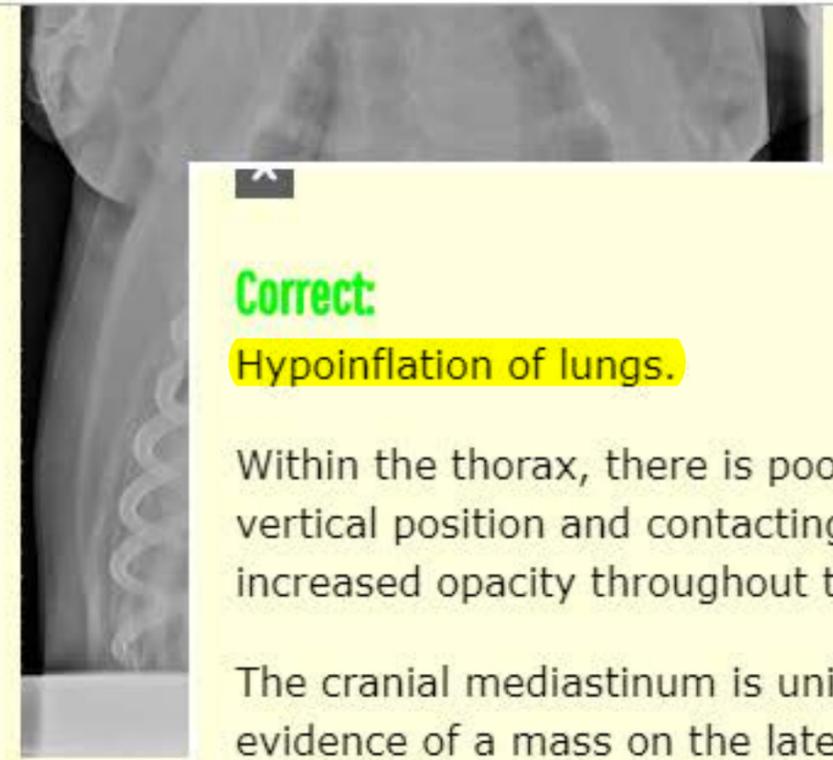
A 12-year-old male Labrador retriever is presented with a one-year history of cough and stridor. **a harsh or grating sound**

Which one of the following choices can be ascertained from the thoracic radiographs?





Emphysema	HIDE
Hypoinflation of lungs	HIDE
Cranial mediastinal mass	HIDE
Class III heartworm disease	HIDE
Cardiomegaly	HIDE



**Correct:**

**Hypoinflation of lungs.**

Within the thorax, there is poor inflation with the diaphragm remaining in a relatively vertical position and contacting the entire caudal border of the heart. There is increased opacity throughout the lungs, with a bronchointerstitial pattern.

The cranial mediastinum is uniformly widened on the d/v projections with no evidence of a mass on the lateral projection. The heart and vessels appear normal.

The pulmonary changes are probably due to hypoinflation secondary to upper airway obstruction, however, additional airway or parenchymal disease cannot be ruled out. In this case, the dog had bilateral laryngeal paralysis.

Emphys

Hypoinfl

**Cranial**

Class III heartworm disease

HIDE

Cardiomegaly

HIDE

BACK

NEXT



 **zukureview**  **SAVE & EXIT**

[< PREV](#) [NEXT >](#)

11	12	13	14	15	16	17	18	19	20
----	----	----	----	----	----	----	----	----	----

An 8-month old male German Shepherd is presented with a history occasional hind limb lameness

[Click here to see image](#)

What is the diagnosis?

Panosteitis	HIDE
Hip dysplasia	HIDE
Septic osteoarthritis	HIDE
Coxofemoral luxation	HIDE
Hypertrophic osteodystrophy	HIDE

[BACK](#) [NEXT](#) [LEAVE BLANK](#)

THE MERCK VETERINARY MANUAL **Multimedia**



Courtesy of Dr. Ronald Green.

The image is a black and white radiograph of a dog's pelvis, viewed from the front (anteroposterior view). The central part of the image shows the lumbar and sacral vertebrae. On either side, the iliac bones and femurs are visible. The hip joints are clearly defined, and there is a noticeable widening of the joint spaces and a slight lateral displacement of the femoral heads, which is characteristic of hip dysplasia. The overall appearance is symmetrical on both sides.



PREV

11

An 8-mo lamenes:

Click her

What is t

Panoste

Hip dys

Correct:

This is [hip dysplasia](#). Think LARGE, LAME dogs, especially German shepherds. Follow these links to see radiographs of: [early hip dysplasia](#), (no DJD yet), [severe hip dysplasia](#) (Note flattened, angular femoral head, poor congruence (parallel line) with acetabulum) and in contrast [normal canine hips](#) with deeply seated femoral heads and good congruence with acetabulae.

[Coxofemoral luxation](#) (dislocated hip) commonly occurs after more severe trauma (ie: hit by car), but presents NON-weight-bearing.

[Panosteitis](#) is definitely a R/O in a young, lame German shepherd, but is characterized more by a shifting leg lameness with long bone pain, not hip laxity.

Septic osteoarthritis	HIDE
Coxofemoral luxation	HIDE
Hypertrophic osteodystrophy	HIDE

BACK

NEXT



Courtesy of Dr. Ronald Green.

Hip luxation.

 **zukureview**  **SAVE & EXIT**

PREV

NEXT

11	12	13	14	15	16	17	18	19	20
----	----	----	----	----	----	----	----	----	----

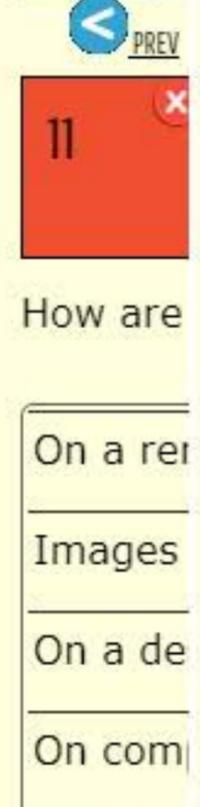
How are digital images best stored permanently in digital radiography?

On a remote hard drive	HIDE
Images are printed out on film and then filed	HIDE
On a desktop computer within the clinic	HIDE
On compact discs, which are then archived	HIDE
Within the x-ray unit itself	HIDE

BACK    NEXT    LEAVE BLANK

 Overview     Mark this Question     Lab Values     Definitions     Report a Problem

 **SAVE & EXIT**



**Correct:**  
Digital images are stored on a remote hard drive called the *Picture Archival Computing System* (PACS).  
The PACS allow storage of large data files that are generated from digital radiography.  
Physical storage space is not required as it is with traditional film screen x-rays.  
Digital images can be quickly accessed and shared with other clinics and specialists, facilitating consultations and second opinions.  
Refs: McCurnin and Bassert, Clinical Textbook for Veterinary Technicians, 9<sup>th</sup> ed. pp.

BACK NEXT

 Overview  Mark this Question  Lab Values  Definitions  Report a Problem

 **zukureview**  **SAVE & EXIT**

PREV

NEXT

11	12	13	14	15	16	17	18	19	20
----	----	----	----	----	----	----	----	----	----

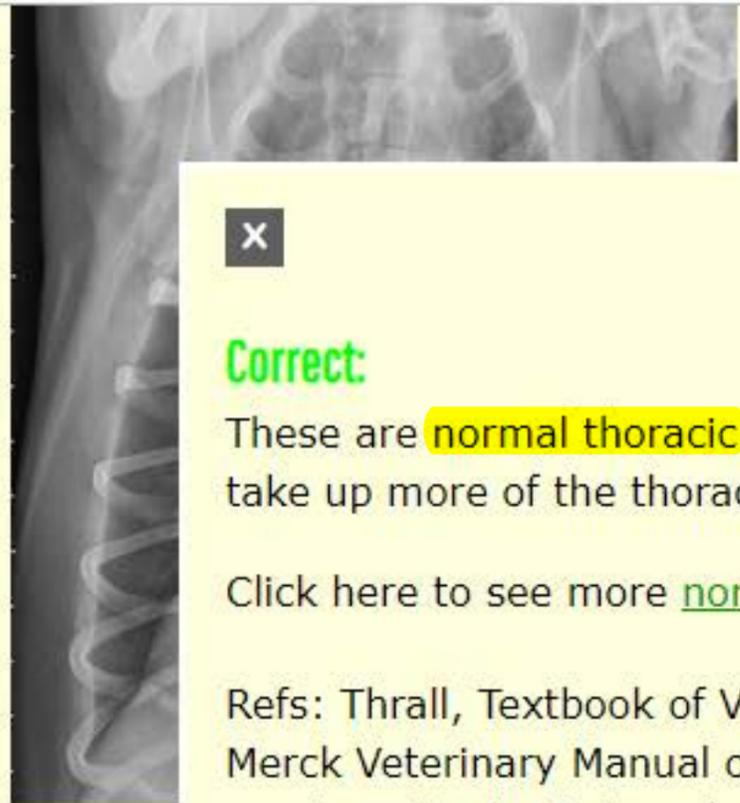
A 4-year-old female dachshund is presented with a caudal mammary mass. Thoracic radiographs are taken to rule out the possibility of metastasis.

Which one of the following choices is the most likely diagnosis?





Metastatic lung disease	HIDE
Pulmonary hypertension / vascular pattern	HIDE
Left ventricular enlargement	HIDE
Normal radiographs	HIDE
Left atrial enlargement	HIDE



**Correct:**

These are **normal thoracic radiographs**. In barrel-chested dogs, the heart appears to take up more of the thoracic volume than in deep-chested dogs.

Click here to see more [normal canine thoracic radiographs](#).

Refs: Thrall, Textbook of Veterinary Diagnostic Radiology 6<sup>th</sup> ed. pp. 474-88 and the Merck Veterinary Manual online edition. Radiographic interpretation and images courtesy, Dr. A. Zwingenberger and [Veterinary Radiology](#).

- Metasta
- Pulmona

Left ventricular enlargement	HIDE
Normal radiographs	HIDE
Left atrial enlargement	HIDE

BACK    NEXT

 **zukureview**  **SAVE & EXIT**

 PREV

NEXT 

11	12	13	14	15	16	17	18	19	20
----	----	----	----	----	----	----	----	----	----

Which setting is better for an x-ray of a part of the body with high contrast between tissues, like a hip x-ray of a young dog?

High kilovoltage (kVp); High milliamp-seconds (mAs)	HIDE
High kilovoltage (kVp); Low milliamp-seconds (mAs)	HIDE
Low kilovoltage (kVp); Low milliamp-seconds (mAs)	HIDE
Low kilovoltage (kVp); High milliamp-seconds (mAs)	HIDE

[BACK](#)   [NEXT](#)   [LEAVE BLANK](#)

 Overview    Mark this Question    Lab Values    Definitions    Report a Problem



PREV

11

**Correct:**

Use a lower kVp and higher mAs settings to increase the contrast between bone (white) and soft tissue (black) in the finished radiograph.

Which se  
like a hip

Kilovoltage (kVp) affects the scale of contrast on an x-ray.

The scale of contrast refers to the number of shades of gray that you can see.

High kilo

Generally, increasing kVp decreases the contrast seen in the final image.

High kilo

Refs: Bassert and Thomas, McCurnin's Clinical Textbook for Veterinary Technicians, 9<sup>th</sup> ed. pp. 485-7.

Low kilo

Low kilo

BACK

NEXT







This is an esophageal stricture **secondary to doxycycline** that remained in the esophagus too long.

Which of



Administration of doxycycline to cats should be in a slurry or followed by a bolus of food or water.

Plain radiographs were unremarkable. Fluoroscopy was performed using liquid barium.

There was a persistent narrowing in the cranial cervical esophagus which never dilated as the peristaltic bolus passed through it.

There was also slowing of the bolus passage at this site.

Doxycycline

Spirocerca lupi is the esophageal worm of the dog.

Metoclopramide

It can cause the formation of a radiodense mass in the esophagus.

*Spirocerca lupi*

HIDE

Poinsettia HIDE

Myasthenia gravis HIDE





PREV NEXT

11	12	13	14	15	16	17	18	19	20
----	----	----	----	----	----	----	----	----	----

An 8-year-old West Highland white terrier is presented with a 4-6 month history of respiratory distress that had been getting progressively worse.

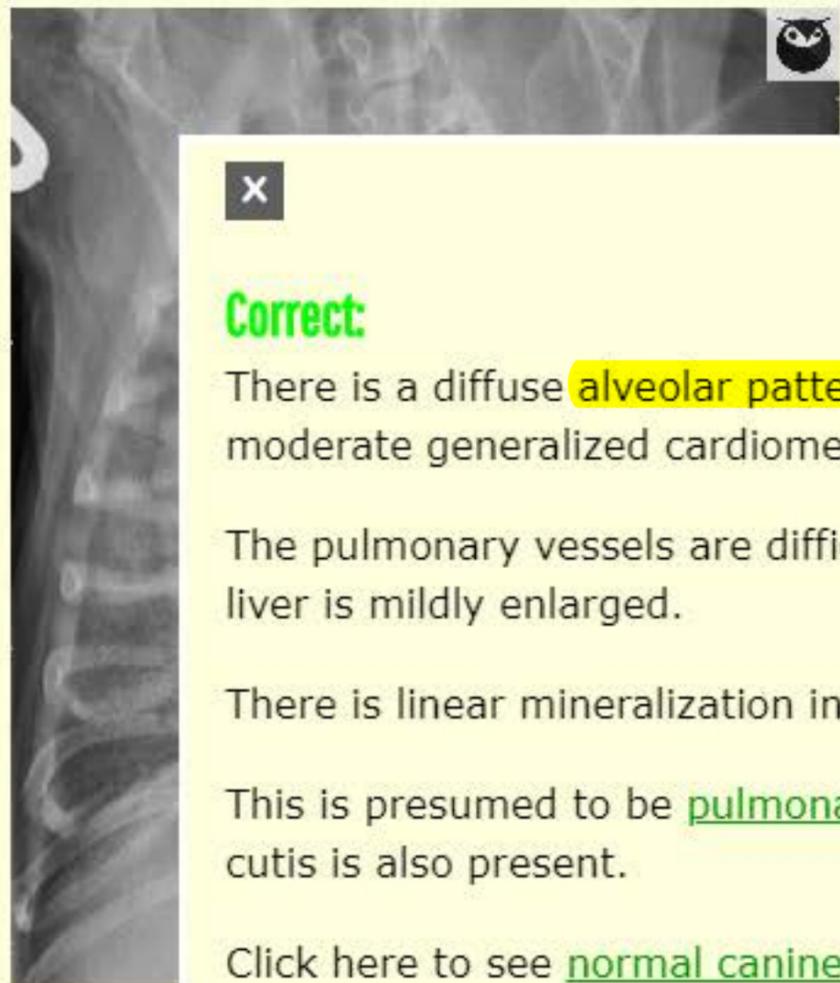
There is no coughing associated with her breathing problems, but the dog is exercise intolerant.

What is the predominant pulmonary pattern?





Alveolar	HIDE
Cannot say without further diagnostics	HIDE
Vascular	HIDE
Interstitial	HIDE
Bronchial	HIDE



X

**Correct:**

There is a diffuse **alveolar pattern** that is most severe caudodorsally. There is moderate generalized cardiomegaly with primarily right sided enlargement.

The pulmonary vessels are difficult to identify due to the pulmonary infiltrates. The liver is mildly enlarged.

There is linear mineralization in the soft tissues dorsal to the spine.

This is presumed to be pulmonary fibrosis of West Highland white terriers. Calcinosis cutis is also present.

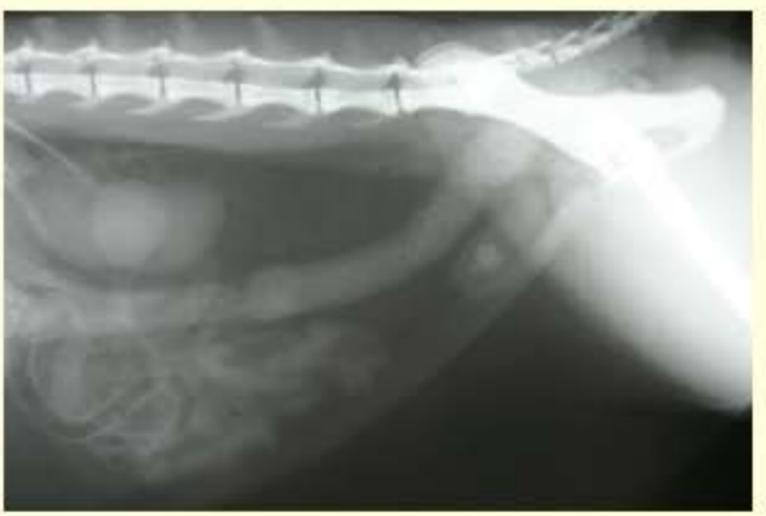
Click here to see [normal canine thoracic radiographs](#).

Cannot say without further diagnostics	HIDE
Bronchial	HIDE
Vascular	HIDE
<b>Alveolar</b>	HIDE
Interstitial	HIDE

PREV NEXT

11	12	13	14	15	16	17	18	19	20
----	----	----	----	----	----	----	----	----	----

What is the abnormality in this feline radiograph?



Mesenteric volvulus	HIDE
Cystic calculi	HIDE
Intussusception	HIDE
Hydronephrosis	HIDE
Prostatomegaly	HIDE



PREV

11

What is t



**Correct:**

You are looking at **cystic calculi** (bladder stones) in the CAUDOVENTRAL abdomen. You should be thinking about **bladder stones / Feline Urologic Syndrome** in any male cat who presents with ANY history of urinary problems, period (ie: "accidents" outside litter box, straining, painful abdomen, lingering in litter box).

Refs: Merck Veterinary Manual online edition. Image courtesy of Dr. Scot Nachbar, .

Intussusception	HIDE
Prostatomegaly	HIDE
Mesenteric volvulus	HIDE
<b>Cystic calculi</b>	HIDE

 **zukureview**  **SAVE & EXIT**

[<](#) PREV

NEXT [>](#)

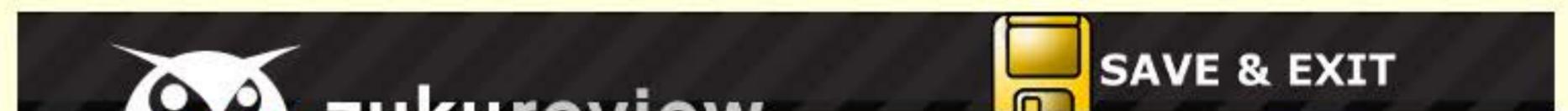
21	22	23	24	25	26	27
----	----	----	----	----	----	----

Which choice might explain why a radiograph comes out very dark?

Low milliampere-seconds	HIDE
Long focal distance	HIDE
Poor centering of the primary x-ray beam	HIDE
High kilovoltage	HIDE

[BACK](#) [NEXT](#) [LEAVE BLANK](#)

 Overview  Mark this Question  Lab Values  Definitions  Report a Problem



**Correct: High ki lovoltage**

An **overexposed radiograph** (ie: very dark) may occur if milliamperere-seconds (mAs) or kilovoltage (kV) are set too high, or if the speed of an intensifying screen is too FAST.

An incorrect measurement of body part thickness, or too short a focal distance from the x-ray tube to the patient can also overexpose a radiograph.

Poor centering of the primary x-ray beam causes image blurring or distortion.

Low milliamperere-seconds causes a reduction in film density, resulting in a lighter radiograph.

For good tables that list common technical errors in taking and developing x-ray films, see Bassert and Thomas, McCurnin's Clinical Textbook for Veterinary Technicians 8<sup>th</sup> ed. Boxes 16-2 and 16-3.

BACK NEXT

Overview | Mark this Question | Lab Values | Definitions | Report a Problem

 **zukureview**  **SAVE & EXIT**

[PREV](#)

[NEXT](#)

21 ✓	22	23	24	25	26	27
------	----	----	----	----	----	----

Fluoroscopy is useful to help diagnose which one the following conditions?

Bile duct obstruction	HIDE
Tracheal collapse	HIDE
Renal dysplasia	HIDE
Lung lobe torsion	HIDE
Pericardial effusion	HIDE

[BACK](#)   [NEXT](#)   [LEAVE BLANK](#)

 Overview    Mark this Question    Lab Values    Definitions    Report a Problem



- 21 ✓
- Fluorosc
- Bile duc
- Trachea
- Renal dy
- Lung lob
- Pericardial erosion

**Correct:**

Fluoroscopy is commonly used to **diagnose tracheal collapse.**

Fluoroscopy provides a continuous radiographic image, allowing visualization of the changing tracheal diameter during inspiration and expiration.

Click here to see a video of [fluoroscopy performed on a dog with tracheal collapse.](#)

Fluoroscopy is an excellent tool for assessing dynamic processes and moving structures.

Other indications for fluoroscopy include assessment of esophageal motility, myelography, cardiovascular studies, fracture reductions and catheter/stent



BACK NEXT

- Overview
- Lab Values
- Definitions



- 21 ✓
- Fluorosc
- Bile duc
- Trachea
- Renal dy
- Lung lob
- Pericardial erosion

structures.

Other indications for fluoroscopy include assessment of esophageal motility, myelography, cardiovascular studies, fracture reductions and catheter/stent placement.

Because a continuous x-ray beam is used, radiation exposure is a concern.

Radiographers must follow safety procedures and wear a dosimeter during procedures.

Refs: McCurnin and Bassert, Clinical Textbook for Veterinary Technicians, 9<sup>th</sup> ed. pp. 513-4 and The American College of Veterinary Surgeons

BACK NEXT

- Overview
- Lab Values
- Definitions

 **zukureview**  **SAVE & EXIT**

[PREV](#)

[NEXT](#)

21 ✓	22 ✓	23	24	25	26	27
------	------	----	----	----	----	----

Which one of the following choices is a **contraindication** for the **use of barium sulfate** as a **radiographic contrast** agent?

Regurgitation	HIDE
Esophageal dilation	HIDE
Diarrhea	HIDE
Bowel perforation	HIDE
Vomiting	HIDE

[BACK](#)   [NEXT](#)   [LEAVE BLANK](#)

 Overview    Mark this Question    Lab Values    Definitions    Report a Problem



- 21
- Which of the following is a contraindication for barium sulfate use?
- Regurgitation
- Esophageal stricture**
- Diarrhea
- Bowel perforation
- Vomiting

**Correct: Bowel perforation**

Barium sulfate should NOT be used as a radiographic contrast agent if an upper or lower bowel perforation is present.

Severe constipation is another contraindication for barium sulfate use.

Barium sulfate is a positive contrast material used almost exclusively for upper and lower gastrointestinal studies.

Barium studies are useful for diagnosing esophageal diseases (e.g., motility disorders, stricture, foreign bodies) and bowel obstructions.

Aspiration pneumonia is a potential complication of using barium sulfate, particularly if the patient is vomiting or regurgitating.

BACK NEXT

Overview | Mark this Question | Lab Values

 **zukureview**  **SAVE & EXIT**

[PREV](#)

[NEXT](#)

21 ✓	22 ✓	23 ✗	24	25	26	27
------	------	------	----	----	----	----

What are the **three most important factors** to remember for **radiation safety**?

kVp setting, focal-film distance, grid type	HIDE
Time, distance, shielding	HIDE
Positioning, angle of tungsten target, temperature of filament	HIDE
Power, restraint, x-ray tube length	HIDE

[BACK](#)   [NEXT](#)   [LEAVE BLANK](#)

 Overview    Mark this Question    Lab Values    Definitions    Report a Problem



21 ✓

What are the three principles of radiation safety?

kVp setting

Time, distance, shielding

Positioning

Power, r

**Correct:**

For radiation safety, **think time, distance, shielding.**

**TIME:** Take the time to get your shot right the first TIME. Less shots=less exposure.

**DISTANCE:** Stay as far away from the patient and the x-ray beam as possible. Chemical restraint, sand bags, tapes and wedges all help you position the animal and then to step safely AWAY.

**SHIELDING:** Wear lead-lined gloves, thyroid protectors and aprons.

Refs: Bassert and Thomas, McCurnin's Clinical Textbook for Veterinary Technicians, 8<sup>th</sup> ed. pp. 541-2, 126-7 and Tighe and Brown, Mosby's Comprehensive Review for

BACK NEXT

- Overview
- Mark this Question
- Lab Values
- Definitions
- Report a Problem

 **zukureview**  **SAVE & EXIT**

[<](#) PREV

NEXT [>](#)

21 ✓	22 ✓	23 ✗	24 ✓	25	26	27
------	------	------	------	----	----	----

In what situation should a **grid be used** when x-raying a patient?

When body part is more than 10 cm thick	HIDE
For field x-rays (i.e., hoof x-rays in a barn)	HIDE
When taking x-rays of delicate bone, like nasal area	HIDE
For anatomic structures less than 8 cm thick	HIDE
When trying to increase film density	HIDE

[BACK](#)   [NEXT](#)   [LEAVE BLANK](#)

 Overview    Mark this Question    Lab Values    Definitions    Report a Problem



PREV

21

**Correct: When body part is more than 10 cm thick**

The thicker the tissue, the more the x-ray scatters. Thick body parts like thorax, abdomen, skull and joints greater than 10 cm require a grid. A grid is like the focusing lens in a camera. A high-ratio grid permits FEWER x-rays to pass through it from the animal, but you get a better, more high-resolution radiograph. The grid prevents scattered radiation from reaching an x-ray film, so that only the primary, directly aimed x-rays penetrate straight into the animal for the best image.

In what

When b

For field

When ta

For anat

When trying to increase film density

An x-ray grid is basically a plate made of alternating strips of lead, which block scattered x-rays, interspersed between strips of plastic or aluminum, which allow the straight x-rays through.

Refs: Bassert and Thomas, McCurnin's Clinical Textbook for Veterinary Technicians,

BACK NEXT



 **zukureview**  **SAVE & EXIT**

[PREV](#)

[NEXT](#)

21 ✓ 22 ✓ 23 ✗ 24 ✓ 25 ✓ 26 27

Which one of the following conditions in a vomiting cat is most likely to show plicated loops of bowel in the cranial abdomen with eccentric comma-shaped gas bubbles using a plain abdominal radiograph?

Linear foreign body	HIDE
Strangulating lipoma or obstructive neoplasia	HIDE
Pyloric stenosis secondary to chronic hypertrophic gastropathy	HIDE
Intussusception	HIDE
Common finding in a cat with hairballs	HIDE

[BACK](#) [NEXT](#) [LEAVE BLANK](#)

 Overview  Mark this  Lab  Definitions  Report



PREV

21

Which of  
of bowel  
abdomin

Linear f

Strangu

Pyloric s

Intussusception

Common finding in a cat with hairballs

Correct

Think of a linear foreign body (like thread, floss, tinsel) in a cat with acute onset of vomiting, a painful mass in the cranial abdomen and a radiograph showing plicated loops of bowel in the cranial abdomen with eccentric comma-shaped gas bubbles.

Dogs show the classic plicated loops of bowel etc, etc more often than cats, but cats seem to eat more thread, floss and string than dogs.

Exploratory laparotomy is indicated. If needed, the string can be removed, perforations repaired, and resection and anastomosis or biopsy of intestines can be done.

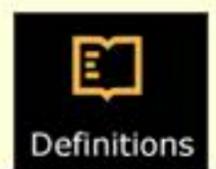
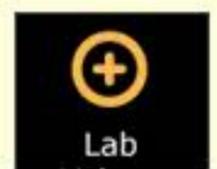
Refs: Cote, Clinical Veterinary Advisor-Dogs and Cats, 3<sup>rd</sup> ed. pp. 373-4 and the

HIDE

HIDE

BACK

NEXT



 **zukureview**  **SAVE & EXIT**

PREV

NEXT

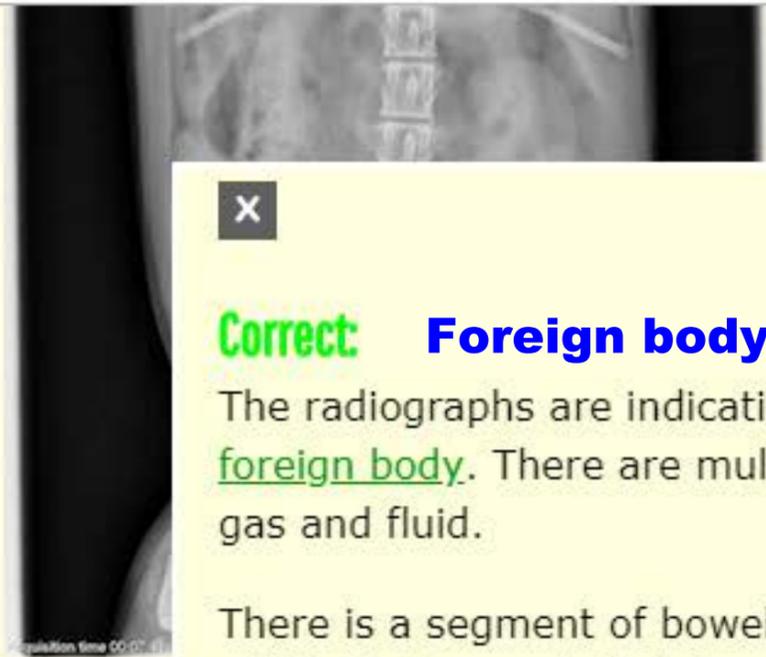
21 ✓	22 ✓	23 ✗	24 ✓	25 ✓	26 ✓	27
------	------	------	------	------	------	----

An 8-year-old Yorkshire terrier is presented with a 48-hour history of vomiting.  
Which one of the following choices is the most likely diagnosis?





Foreign body obstruction	HIDE
Splenic neoplasia	HIDE
Intussusception	HIDE
Retroperitoneal mass	HIDE
Gastroenteritis	HIDE



**Correct: Foreign body obstruction**

The radiographs are indicative of a mechanical obstruction due to [gastrointestinal foreign body](#). There are multiple loops of enlarged small intestine which are filled with gas and fluid.

There is a segment of bowel that is persistently filled with granular material, which is visible in the ventral abdomen on the lateral projections, and in the right side of the abdomen on the v/d. The spleen is moderately enlarged and normal in shape.

The remainder of the abdominal organs appear normal, and peritoneal detail is good.

Click here to see [normal abdominal radiographs](#).

- Foreign**
- Splenic
- Retrope
- Intussusception
- Gastroenteritis HIDE

BACK

*This is the last question. Click Save and Exit after you finish it.*

FINISH