

MEDICAL BULLETIN



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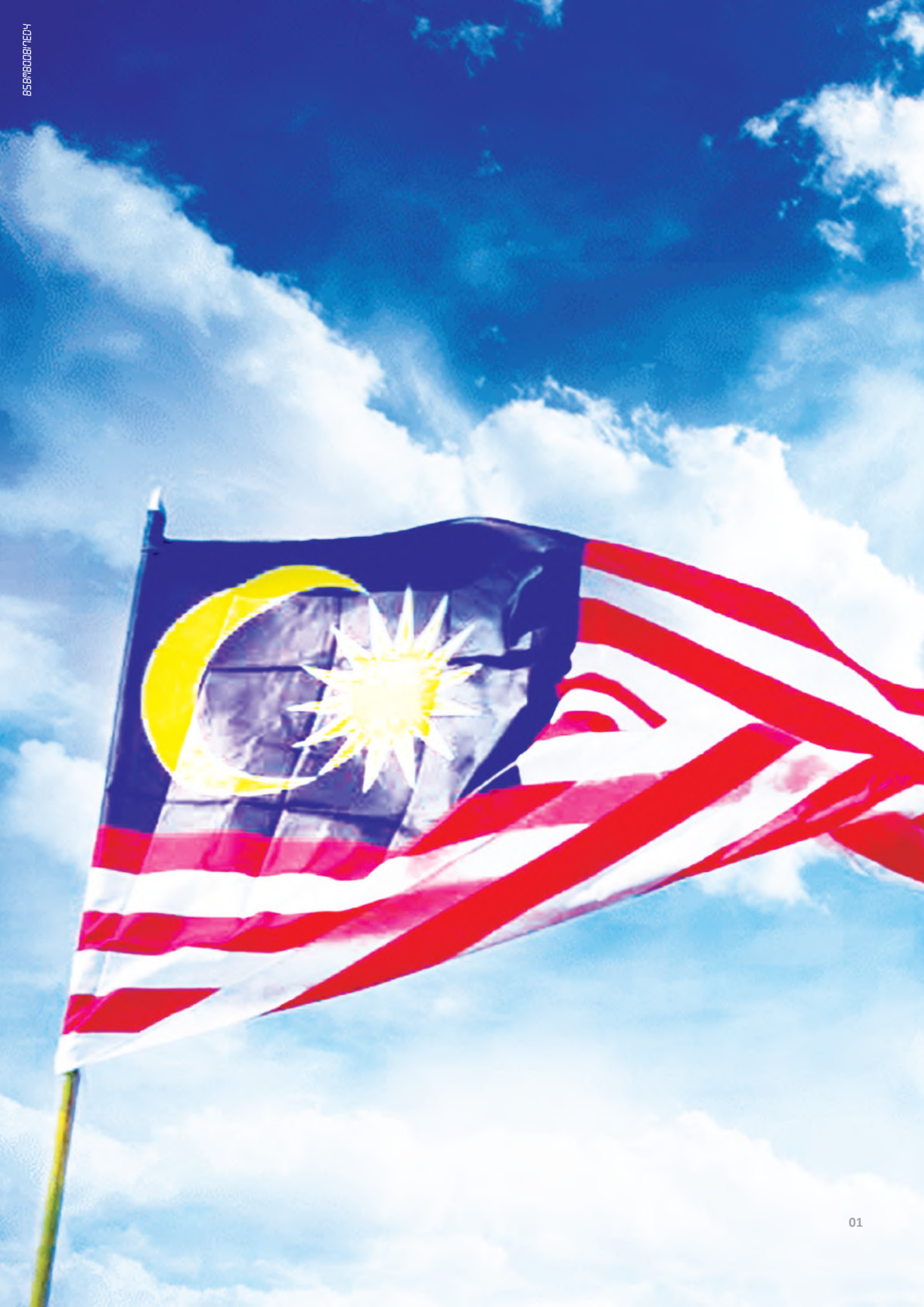
HAPPY  **TH**
INDEPENDENCE DAY
MALAYSIA!

**AS LOW AS
REASONABLY
ACHIEVABLE**

ALARA PRINCIPLE

**HIV
REMISSION
WITHOUT
DRUGS**





Dear Dr's and Colleagues,



Greetings from Bestinet Editorial team.

Moving forward we are glad to be in contact again via this bulletin, our team is still hopeful for your valuable contribution to further enhance the contents on this bulletin and as I see it contribution's via localised outbreak of diseases or input on the signs and symptom's exhibited on investigations which in their noble opinions supported their clinical opinions .

The tele radiology systems in operation in countries have proven successful in eliminating failures in Malaysia due to differences in radiology interpretation, we are looking forward in its implementation in all the FWCMS medical centre's.

The other matter which needs to mention here is the total elimination of workers being send back from the Airport due to Wrong Hand impressions.

It goes to prove the supremacy in the Bestinet Biomedical technology, which has been tested and proven in its capability, those who have tried their best in overriding the system have failed.

Last but not least a gentle reminder to ensure Only the person who is the registered passport holders is the same person being examined, x-Ray and samples collected to ensure compatibility.

This is the Independence month for Malaysia so is for other countries in the FWCMS panel and signing off with heartiest congratulations to Malaysia and other countries that celebrates the Independence Day in this joyful month of August!

Sam SU

{ AS LOW AS REASONABLY ACHIEVABLE }

ALARA PRINCIPLE

ALARA is not only a sound radiation safety principle, but it is a regulatory requirement for all “radiation protection programs.” The ALARA concept is an integral part of all activities that involve the use of radiation or radioactive materials and can help prevent unnecessary exposure as well as overexposure.

It's very important to understand how to protect your medical staff and patients when working around high frequency radiation and to be aware of ways to reduce the level of radiation exposure. It takes a team effort to successfully implement the ALARA principles. ALARA should be a routine element of your work in radiological areas.

ALARA PRINCIPLE

ALARA is an acronym used in radiation safety for “As Low As Reasonably Achievable”. The ALARA radiation safety principle is based on the minimization of radiation doses and limiting the release of radioactive materials into the environment by employing all “reasonable methods.”

How can you reduce internal radiation exposure?

Good Hygiene

Practicing good hygiene and housekeeping habits effectively moderate the internal radiation hazards presented by radionuclides. By eliminating the presence of food and drink in areas where radioactive materials are used or stored, and controlling “hand to mouth” habits, the risk of internal radiation exposure is reduced.

Control of Contamination

Labelling radioactive and potentially radioactive areas and items will help prevent the spread of contamination. It is important to control contamination with absorbent papers and spill trays and placing any contaminated item in a properly labelled waste container. When a contamination occurs it is important to promptly decontaminate the area to prevent the spread of contaminate.

Airborne Hazards

Using fume hoods and avoiding dust, aerosol, or volatile gas production can reduce the potential for inhalation of radioactive substances.

Use Proper PPE

Using the proper personal protective equipment (PPE) such as disposable gloves, safety glasses, lab coats, etc. will help reduce the possibility of ingestion or absorption of radioactive materials.

How can you reduce external radiation exposure?

Time

Reducing the time of exposure can directly reduce radiation dose. Dose rate is the total amount of radiation absorbed relative to its biological effect. Dose rate is the rate at which the radiation is absorbed. Limiting the time of radiation exposure will reduce your radiation dose.

Distance

Increasing the distance between you and the radiation source you will reduce exposure by the square of the distance. Doubling the distance between your body and the radiation source will divide the radiation exposure by a factor.

Shielding

Lead or lead equivalent shielding for X-rays and gamma rays is an effective way to reduce radiation exposure. There are various types of shielding used in the reduction of radiation exposure including lead aprons, mobile lead shields, lead glasses, and lead barriers. When working in radiation areas it is important to use shielding whenever possible.

Annual Occupational Dose Limits for Adults

5 rem	Whole Body Total Effective Dose Equivalent
15 rem	Eye Dose Equivalent
50 rem	Extremity or Organ Dose Equivalent

Annual General Public Dose Limit

0.1 rem	Whole Body Total Effective Dose Equivalent
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RADIATION AREA

Radiation Area	An area where	5mrem/hr	or greater is possible at 30 cm from the source
High Radiation Area	An area where	100mrem/hr	or greater is possible at 30 cm from the source
Very High Radiation Area	An area where	500mrem/hr	or greater is possible at 1 meter from the source



SOUTH AFRICAN CHILD IN **HIV** **REMISSION** **WITHOUT** **DRUGS**

Treating HIV-infected children briefly in infancy may lower the need for life-long therapy.

A 9-year-old child from South Africa has been living with HIV in drug-free remission for 8.5 years, scientists announced at the ninth International AIDS Society conference, held in Paris, France. Researchers report that this is the third instance of prolonged HIV remission in a child after anti-HIV treatment.

The research adds to a growing body of evidence suggesting that early treatment of the virus in infancy may suppress HIV to undetectable levels, which could reduce the need for life-long drug treatment.

Dr. Avy Violari, head of pediatric research at the Perinatal HIV Research Unit at the University of the Witwatersrand in Johannesburg, South Africa, co-led the study with Mark Cotton, head of the Division of Pediatric Infectious Diseases at Stellenbosch University, also in South Africa.

At the conference, the researchers presented the case of the South African child, who was diagnosed with HIV infection in 2007, at just 32 days old. The child was enrolled in the Children with HIV Early Antiretroviral Therapy (CHER) clinical trial, which is funded by the National Institute of Allergy and Infectious Diseases (NIAID).

The infants in the trial were randomly assigned to receive either deferred antiretroviral therapy (ART) or early ART for 40 or 96 weeks, at which point the treatment would be stopped. The South African child was among the 143 infants who received early ART treatment for a total of 40 weeks.

EARLY ART TREATMENT TIED TO HIV REMISSION

Before treatment, the child's levels of HIV in the blood, or viral load, were very high. At around 9 weeks of age, the child started ART, which suppressed the virus to undetectable levels. The child's treatment was halted at 40 weeks, and their immune health was monitored during years of follow-up examinations.

Investigators assessed the child's immune health and the presence of HIV at age 9.5 years. They found a reservoir of virus in a tiny portion of immune cells, but otherwise no evidence of HIV infection was detected and there were no associated symptoms.

While the researchers detected a trace of response by the immune system, they were unable to identify any HIV capable of replicating. It was confirmed that the child does not have genetic characteristics connected with spontaneous HIV control, which suggests that the 40 weeks of ART received during infancy may have played a key role in achieving HIV remission.

Since the initial treatment, the child has maintained undetectable levels of HIV. "To our knowledge, this is the first reported case of sustained control of HIV in a child enrolled in a randomized trial of ART interruption following treatment early in infancy," says Dr. Violari.

CONSISTENT TREATMENT PREVENTS HIV TRANSMISSION AMONG GAY MEN

Researchers show that ongoing treatment among HIV-positive homosexual males can suppress the virus, meaning that they may never transmit their disease to an HIV-negative partner.

"Further study is needed to learn how to induce long-term HIV remission in infected babies," explains Anthony S. Fauci, director of the NIAID.

"However, this new case strengthens our hope that by treating HIV-infected children for a brief period beginning in infancy, we may be able to spare them the burden of life-long therapy and the health consequences of long-term immune activation typically associated with HIV disease."

THIRD PROLONGED DRUG-FREE REMISSION CASE

This child's case is the third instance of long-term HIV remission without ongoing drug therapy. In 2010, a child known as the "Mississippi Baby" received anti-HIV treatment 30 hours after birth. After ceasing treatment at around 18 months of age, the virus was controlled without drugs for 27 months before reappearing in her blood.

In 1996, a French child was born with HIV and began anti-HIV treatment at 3 months old. In 2015, researchers reported that, after therapy had been stopped sometime between the ages of 5.5 and 7 years, the child was in HIV remission without drugs for more than 11 years.

Anthony S. Fauci

"We believe there may have been other factors in addition to early ART that contributed to HIV remission in this child. By further studying the child, we may expand our understanding of how the immune system controls HIV replication," concludes Caroline Tiemessen, Ph.D., head of cell biology at the Centre of HIV and STIs of the National Institute of Communicable Diseases in Johannesburg, South Africa.



LAUGHTER



A young guy comes to a doctor. After examination, the doctor says:

"So, we will have to cut one of your lungs".

The guy is astonished and tells:

"But doctor, my lungs have always been great, I have never had any problems with them".

"I see it myself. But your liver has no room anymore".

CHEST X-RAY QUALITY ARTIFACT

Key points

- Some artifacts are unavoidable
- A chest X-ray may be obtained to assess position of medical devices
- Ask yourself if artifact limits image interpretation
- Can the question clinical question still be answered?

How is the abnormality of the right lung best described?

- A - Pneumothorax
- B - Hyperexpansion
- C - Upper lobe collapse and consolidation
- D - Lower lobe collapse



Artefactual appearances seen on a chest X-ray may be due to radiographic technique, patient factors, or the presence of external or internal non-anatomical objects. Artifact is often unavoidable, but some artifact can lead to misinterpretation of the image. Medical equipment may obscure anatomical structures, to the detriment of image interpretation, or conversely may be vital to image assessment.

Artifact is acceptable if the clinical question can still be answered. An image need only be repeated if artifact prevents the clinical question from being answered confidently.

Radiographic artifact

This is spurious or unclear appearance of an anatomical structure due to radiographic technique. As previously discussed, examples include rotation, incomplete inspiration and incorrect penetration. Other radiographic artifact includes clothing or jewelry not removed.

Patient artifact

Artifact may be due to patient factors such as poor co-operation with positioning or movement. Very often obesity exaggerates lung density. Occasionally normal anatomical structures such as hair or skin folds can cause confusion.

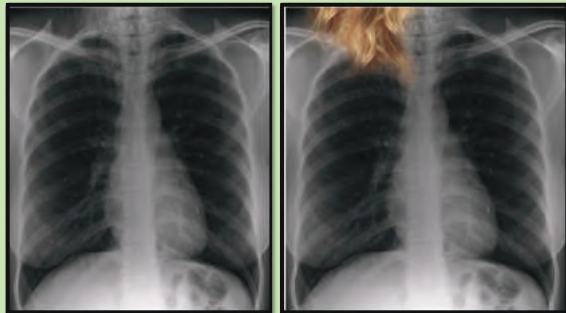
Tutorial for x-ray image

Right apical fibrosis?

There are linear and curve-linear shadows noted in the right apex (arrows). This would be consistent with right apical fibrosis. The left apex is clear.



However, if you look closely, the shadows extend up to the lower neck. It's actually her hairs. **Her CXR is completely normal.**



Hair artifact

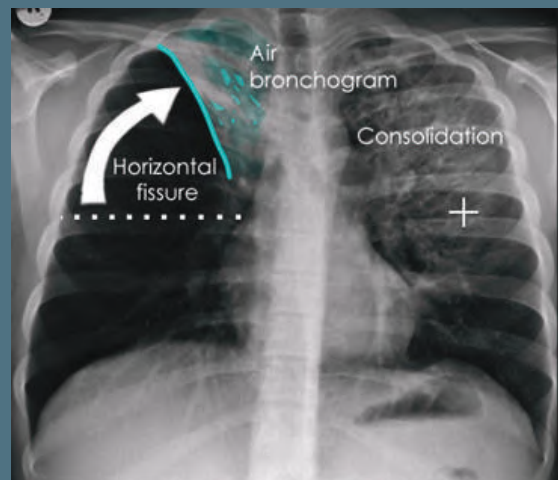
At first glance, the soft tissues at the base of the neck on the right look abnormal. Appearance simulates surgical emphysema. This artifact is due to hair which was draped around the patient's neck.

Answer :

C - Upper lobe collapse and consolidation

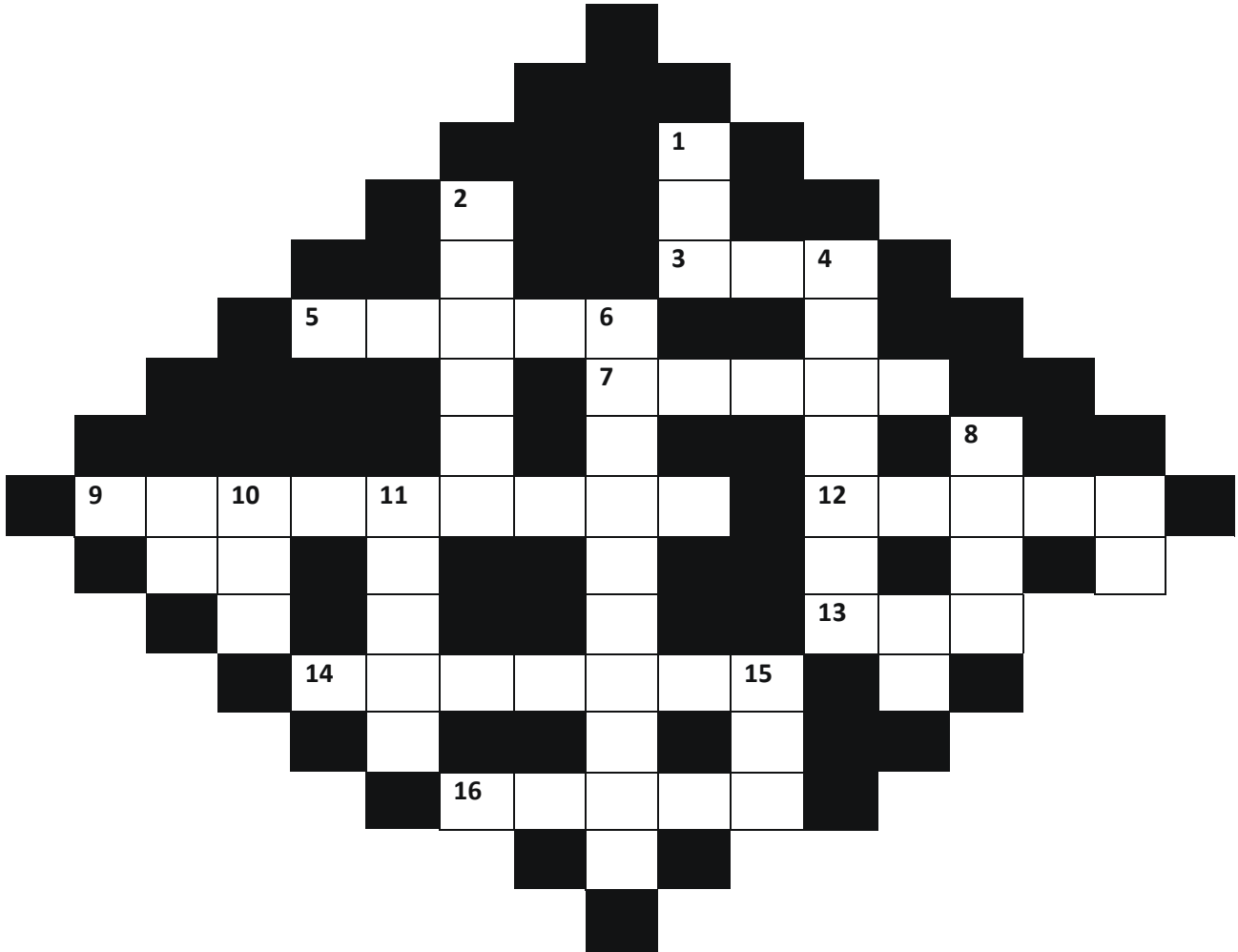
The right upper lobe is collapsed (raised horizontal fissure). Air bronchogram within the right upper zone indicates consolidation.

The image also shows consolidation in the left lung. ▶



This is a reminder for all radiographers and x-ray techs to always keep the hair away. Hairs that overlie the upper chest can mimic pulmonary fibrosis.

MEDICAL PUZZLE : ANATOMY OF BODY



ACROSS

- 3. The part of alimentary canal between the stomach and the anus
- 5. The inner and thicker of the two bones of the human leg between the knee and ankle
- 7. Of or in or relating to the nose
- 9. In a lateral direction or location
- 12. It's the body's pump
- 13. Technically, the part of the superior limb between the shoulder and the elbow but commonly used to refer to the whole superior limb.
- 14. It is hinged so you can open your mouth
- 16. An adjective relating to, or the near, the ulna.

DOWN

- 1. It's commonly used to refer to a whole limb, but technically, is only the part between the knee and ankle.
- 2. The outer and thinner of the two bones of the human leg between the knee and ankle.
- 4. Membranous tube with cartilaginous rings that conveys inhaled air from the larynx to the bronchi.
- 6. A gliding joint between the distal ends of the tibia and fibula and the proximal end of the talus
- 8. The inner surface of the hand from the wrist to the base of the fingers.
- 10. It's a digit of the foot
- 11. Of or relating to the kidneys
- 15. The sense organ for hearing and equilibrium

Answer:
1. LEG 2. FIBULA 3. GUT 4. TRACHEA 5. TIBIA 6. ANKLE JOINT 7. NASAL 8. PALM 9. LATERALLY 10. TOE 11. RENAL 12. HEART 13. ARM 14. JAWBONE 15. EAR 16. ULNAR

FEEDBACK SURVEY



1. Overall, does Medical Bulletin's content and information useful to you?

- Extremely useful
- Very useful
- Somewhat useful
- Not so useful
- Not at all useful

2. How easy is it to understand the content and information on Medical Bulletin?

- Extremely easy
- Very easy
- Somewhat easy
- Not so easy
- Not at all easy

3. How visually appealing is Medical Bulletin?

- Extremely appealing
- Very appealing
- Somewhat appealing
- Not so appealing
- Not at all appealing

4. How likely is it that you would recommend Medical Bulletin to others?

Not at all likely

Extremely likely

0	1	2	3	4	5	6	7	8	9	10
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5. Do you have any other comments about how we can improve Medical Bulletin?



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