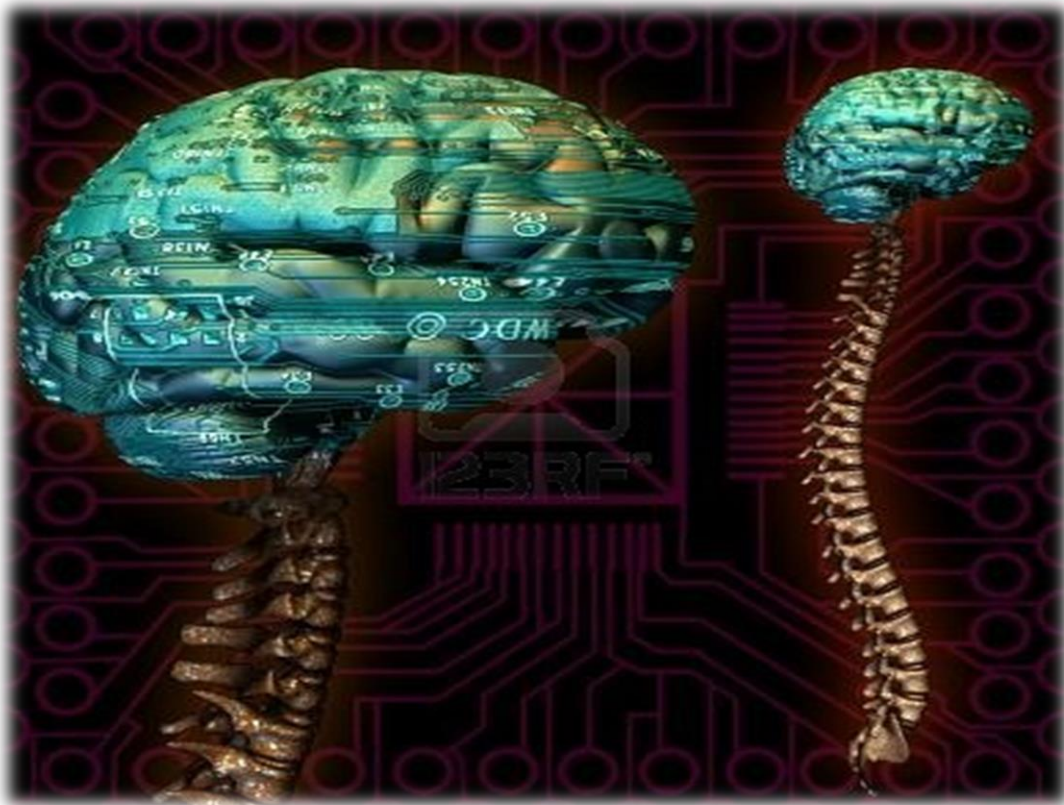




CNS Block



LECTURE (MEDIAN&ULNAR NERVES)

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Reviewed by: Rawan Al-Taleb

تنويه : هذا العمل لا يعتبر مصدر رئيسي للمذاكرة وإنما هو للمراجعة فقط

[If there is any mistake please feel free to contact us:](#)

Anatomyteam32@gmail.com

Both - Black

Male Notes - BLUE

Female Notes - GREEN

Explanation and additional notes - ORANGE

Very Important note - Red





Objectives:

- At the end of the lecture, the student should be able to :
- Describe the origin of the median & ulnar nerves.
- Describe the course & relation of median & ulnar nerves.
- List the motor & sensory distribution of median & ulnar nerves.
- Describe the carpal tunnel syndrome.

Describe the main motor & sensory effects in cases of lesion of median & ulnar nerves (Applied Anatomy)



MEDIAN NERVE C5,6,7,8 & T1

Origin:

-By 2 roots from the medial and lateral cords of brachial plexus.

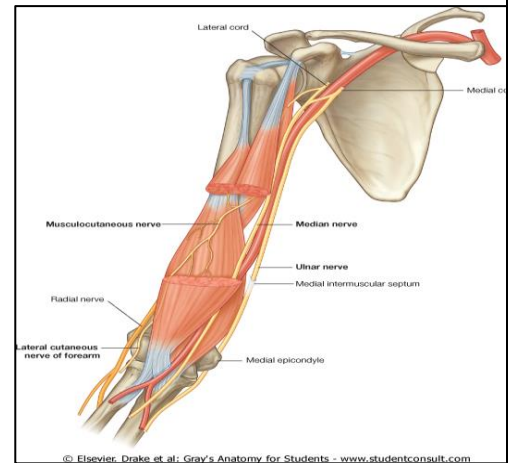
The medial root crosses the 3rd part of axillary artery to join the lateral root.

It runs downward on the lateral side of the brachial artery.

-At the middle of the arm, it crosses the brachial artery from lateral to medial and continues downward on its medial side.

-At the elbow, it lies medial to the tendon of biceps & it is crossed by the bicipital aponeurosis.

It has no branches in the arm.



THEN :

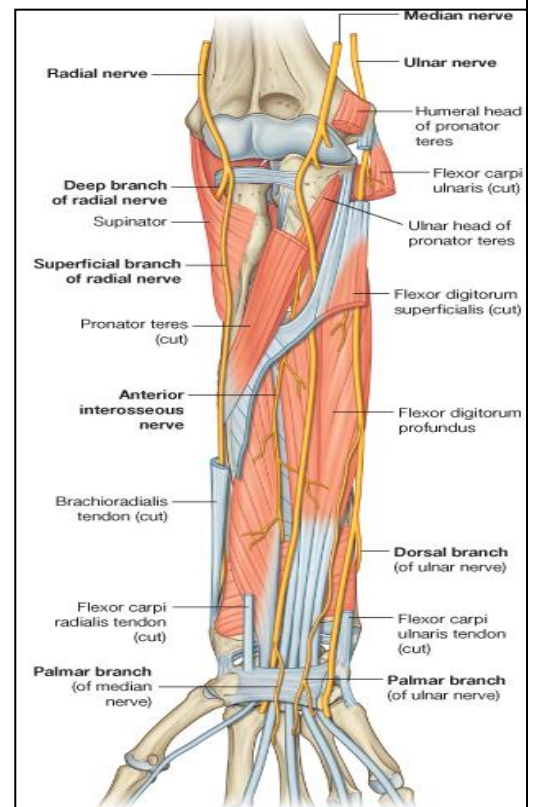
-In the cubital fossa it lies deep to the bicipital aponeurosis.

It leaves the fossa in front of medial epicondyle.

It leaves the fossa between the 2 heads of the pronator teres.

Then it descends between : the flexor digitorum superficialis & the flexor digitorum profundus.

It passes to the palm deep or through the carpal tunnel lateral to the tendon of flexor digitorum superficialis, and deep to the tendon of palmaris longus.



BRANCHES OF THE MEDIAN NERVE IN THE FOREARM :

Muscular: To: *Pronator teres* ,
Flexor carpi radialis , *Palmaris longus* ,
Flexor digitorum superficialis , *Palmar cutaneous branch*.

It arises at the distal part of forearm.. It descends superficial to flexor retinaculum to supply skin of the lateral 2/3 of the palm.

Articular: To elbow joint.

Anterior interosseous nerve:

Descends between flexor pollicis longus and flexor digitorum profundus, anterior to the interosseous membrane.

It supplies : FPL+PQ+ lateral half of FDP.

It gives an **articular branches** to wrist & distal radioulnar joint.





Median nerve in the palm

It enters the palm through the **carpal tunnel**, deep to the *flexor retinaculum*.

Then it divides into lateral & medial branches.

Lies a fingerbreadth distal to the tubercle of scaphoid.

Branches: muscular to **Thenar Eminence (5 muscle)** Ms. →

Digital cutaneous branches :

Cutaneous branches to the palmar aspect of the

lateral 3 & ½ fingers.

*Abductor pollicis
brevis.*

Flexor pollicis brevis.

*Opponens pollicis
(deep to the above 2
ms.).*

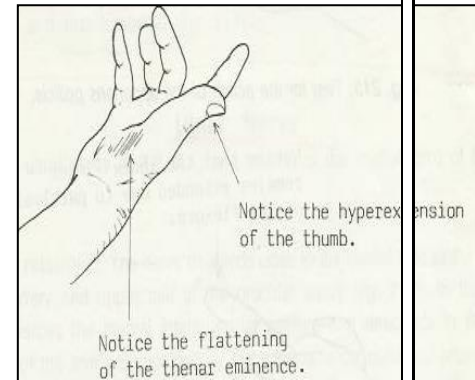
*Lateral 2 lumbricals(1
and 2).*



LESION OF MEDIAN NERVE

I- ABOVE THE ELBOW:

- **Weakness of flexion** of wrist due to paralysis of *flexor carpi radialis* & *palmaris longus*.
- **Loss of pronation** due to paralysis of *pronator teres* & *pronator quadratus*.
- **Loss of flexion of middle phalanges** of **medial 4 fingers** due to paralysis of *flexor digitorum superficialis*.
- **Loss of flexion of terminal phalanges of index & middle fingers** due to paralysis of lateral ½ of the *flexor digitorum profundus*.
- **Loss of flexion** of thumb due to paralysis of *flexor pollicis longus* & *brevis*
- **Loss of opposition** of thumb due to paralysis of *opponens pollicis*.
- **Flattening** of the **thenar eminence** due to atrophy of thenar muscles.
- The characteristic deformity in the hand '**APE HAND**' because the thenar eminence is flattened and the thumb is hyperextended.
- **Loss of cutaneous sensations** on the hollow of palm of hand + palmar surfaces of lateral 3 ½ fingers.



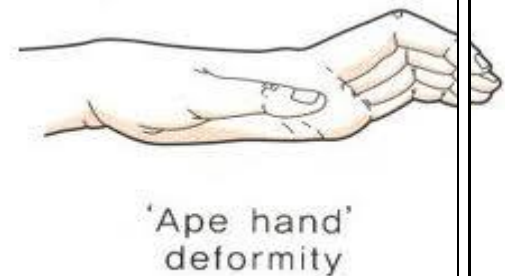
II - ABOVE THE WRIST:

Loss of opposition of thumb due to paralysis of opponens pollicis.

Flattening of the thenar eminence due to atrophy of thenar muscles.

The characteristic deformity '**APE HAND**' is present.

Loss of **cutaneous sensations** on the palmar surfaces of the lateral 3 ½ fingers.



CARPAL TUNNEL SYNDROME

It results from **compression of median nerve** in the carpal tunnel.

Slight flattening of thenar eminence due to **wasting of ms. of thenar eminence** supplied by median nerve.

This is accompanied by **burning pain** or 'pin and needles' and diminished cutaneous sensations on palmar aspect of lateral 3 ½ fingers.

No paresthesia occurs over the thenar eminence (because this area of skin is supplied by palmar cutaneous branch of median N. arises in the distal part of forearm and descends superficial to the flexor retinaculum).





ULNAR NERVE C 7, 8 & T1

Origin:

From the **medial cord** of the brachial plexus.

It runs downward **on the medial side** of the *brachial artery* as far as the middle of the arm.

-At the insertion of the coracobrachialis, it **pierces** the *medial intermuscular septum* and, **accompanied** by the *superior ulnar collateral artery*, **to enter the posterior compartment of the arm**.

-At the elbow, it passes **behind the medial epicondyle**.

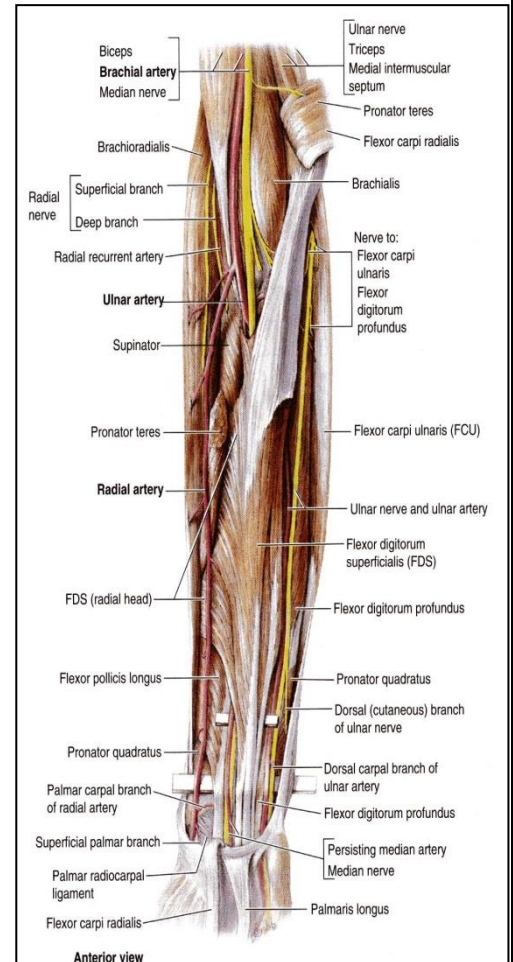
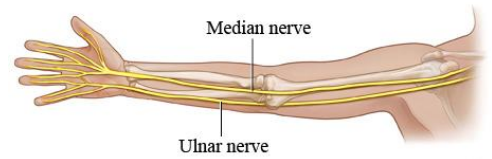
It has no branches in the arm.

-In the FOReARM,

It continues downward to **enter the forearm** between the two heads of the *flexor carpi ulnaris*.

It runs down the forearm **between FCU and FDP**.

In the lower half of the forearm it **lies medial** to the *ulnar artery*.



Branches:

Muscular: To 1 & ½ muscles.

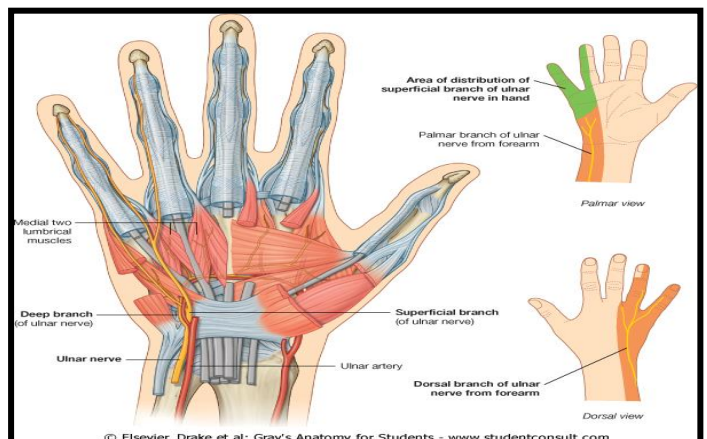
Flexor carpi ulnaris & Medial ½ of FDP

Articular: To elbow joint.

Dorsal or posterior cutaneous branch:

To the **dorsal surface** medial 1/3rd of the hand and 1½ fingers.

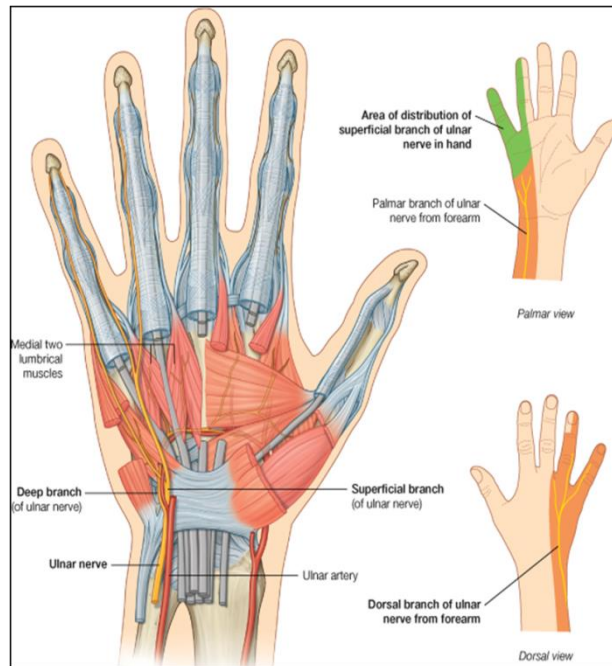
Palmar cutaneous branch : to supply skin of palm of hand.





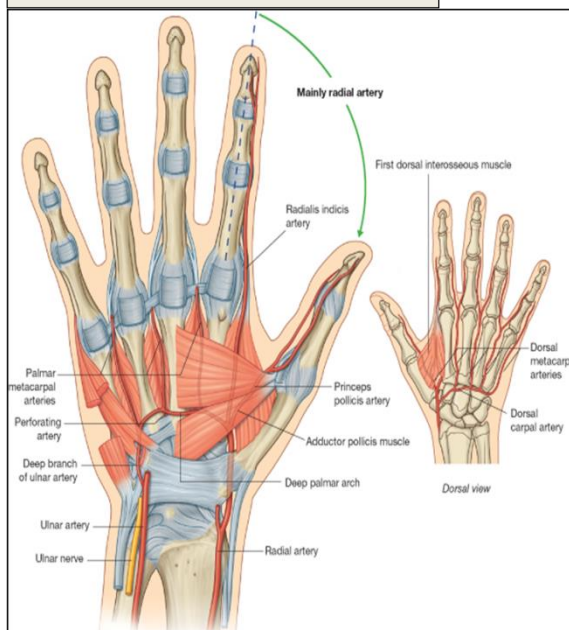
- Enters the palm superficial to the **flexor retinaculum**, close to the lateral border of **pisiform bone**.
- Then it divides into **superficial** & **deep** branches.
 - **Superficial branch:**
- It supplies **palmaris brevis** & **palmar aspect of the medial 1½ fingers**.

ULNAR NERVE in the Hand



- **Deep branch:**
- Runs between **abductor digiti minimi** & **flexor digiti minimi**.
- It pierces **opponens digiti minimi**.
- Then passes laterally **within** the concavity of **deep palmar arch**.
- It lies **deep** to the flexor tendons.
- **It supplies 14 muscles :**
- **Three hypothenar muscles.**
- **Adductor pollicis.**
- **All dorsal & palmar interossei.**
- **Medial 2 lumbrical.**

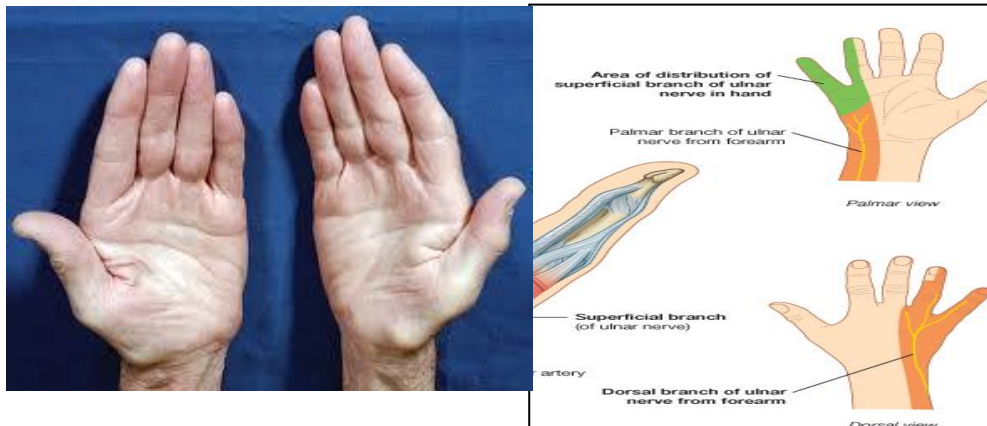
ULNAR NERVE in the Hand





Lesion Of Ulnar Nerve Above Elbow

- **Weakness of flexion** of wrist due to paralysis of *flexor carpi ulnaris*.
- **Loss of flexion** of terminal phalanges of ring & little fingers due to **paralysis** of medial 1 ½ of *flexor digitorum profundus*.
- **Paralysis** of all interossei & medial 2 lumbricals (3rd & 4th).
- The characteristic deformity is called "**Partial Claw Hand**"
- **Atrophy of hypothenar muscles**.
- The fingers are **hyperextended** at *metacarpophalangeal* joints and **flexed** at *interphalangeal* joints in the ring & little finger.
- **Loss of adduction** of hand & thumb due to paralysis of flexor *carpi ulnaris* & *adductor pollicis*
- **Loss of cutaneous sensations** on the front & dorsum of medial 1/3 of hand + medial 1 & ½ fingers .



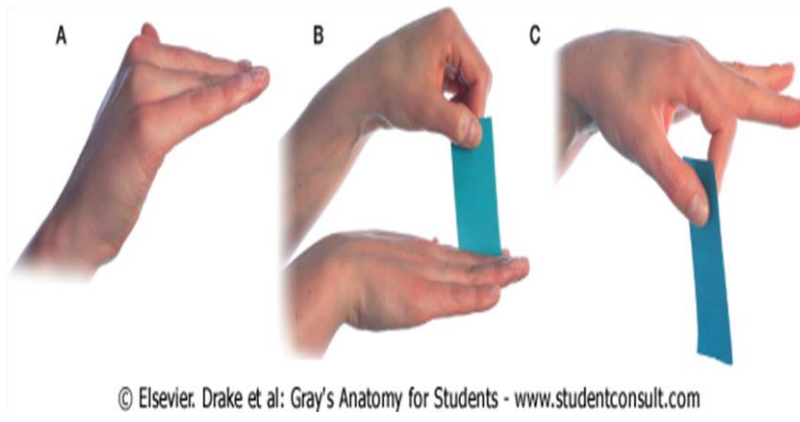
LESION OF ULNAR NERVE ABOVE WRIST

It leads to **paralysis** of *intrinsic muscles* of hand as described above.

The deformity is called '**claw hand**'

Loss of cutaneous sensations of medial 1 & ½ fingers.





Test for Palmar interossei
for adduction of fingers.

Test for adductor &
opponens pollicis.

#remember

Flexor digitorum profundus ends at the proximal phalanges
while flexor digitorum superficialis ends at middle phalanges



Quiz

1-What is the Root value of median nerve ?

- A) C5,6,7,8 &T11
- b) C6,C7
- C) C8,T1
- D) C5,C6,C7,C8,T1

2-How the median nerve is formed ?

- A) **by one root from posterior cord of brachial plexus.**
- B) By 2 roots from the medial and lateral cords of **cervical plexus.**
- C) **By 2 roots from the posterior and lateral cords of brachial plexus.**
- D) **By 2 roots from the medial and lateral cords of brachial plexus.**

3-Median nerve before the middle of the arm runs downward on the Side of the?

- A) **Lateral side , brachial vein.**
- B) **medial side , brachial artery.**
- c) **lateral side , brachial artery.**
- d) **lateral side , axillary artery.**

4- How many the branches of median nerve in arm?

- A) 0
- B) 1
- C) 2



5- median nerve In the cubital fossa it lies deep to theIt leaves the fossa in front of

- A) pronator teres , medial epicondyle
- B) brachialis , medial epicondyle
- C) brachioradialis , medial epicondyle
- D) bicipital aponeurosis , medial epicondyle

6- How the median nerve enters the hand?

- A) enters the hand by passing above to the flexor retinaculum.
- B) enters the hand by passing lateral to the flexor retinaculum.
- C) enters the hand by passing deep to the flexor retinaculum

7- which of the following muscle doesn't have a Muscular BRANCHES OF THE MEDIAN NERVE IN THE FOREARM ?

- A) Pronator teres
- B) Palmaris longus,
- C) Flexor carpi radialis
- D) extensor carpi radialis longus

8- Palmar cutaneous branch of median nerver supply ?

- A) skin of lateral 2/3 of back of hand.
- B) Skin over the back of proximal phalanges of lateral 3 ½ fingers.
- C) skin of the lateral 3/2 of the palm.
- D) skin of the lateral 2/3 of the palm.

9- Which one of these nerves is concerning with the carpal tunnel syndrome ?

- A) The ulnar nerve.
- B) The radial nerve.
- C) The median nerve.
- D) The axillary nerve.



10- In CARPAL TUNNEL SYNDROME ?

- A) results from compression of ulnar nerve in the carpal tunnel.
- B) paresthesia occurs over the thenar eminence.
- C) No paresthesia occurs over the thenar eminence.
- D) diminished cutaneous sensations on dorsum aspect of lateral 3 ½ fingers.

11- Ulnar nerve comes from?

- A) L4
- B) C7,C8 &T1
- C) L4&L3
- D) C8 &T11
- E)

12- At the elbow ulnar nerve passes behind the..... ?

- A) lateral epicondyle
- B) medial epicondyle
- C) spiral groove .

13- We have Branch(es)in the arm of the ulnar nerve ?

- A) 0
- B) 1
- C) 2

14- Ulnar nerve will supply?

- A) Medial 14 of Flexor Digitorum Profundus
- B) Medial 12 of Flexor Digitorum Profundus
- C) Medial 13 of Flexor Digitorum Profundus

15- The only muscle which supplied by Branches of Superficial “ulnar nerve”is?

- A) Palmaris Brevis
- B) Brachialis.
- C) Brachioradialis.



Q	A
1	D
2	D
3	C
4	A
5	D
6	C
7	D
8	D
9	C
10	C
11	B
12	B
13	A
14	B
15	A

GOOD LUCK

Anatomy Team Leaders:

Fahad AlShayhan & Eman AL-Bedica.