CHAPTER 4: HISTOLOGICAL STUDIES OF HUMAN HEART AND HEART FROM EXPERIMENTAL ANIMAL.
HISTOLOGICAL OBSERVATION OF HEARTS

ON HUMAN HEART:

Section of the heart (No. 3, age 30) shows arrangement of the heart muscle fibre from the wall of the left ventricle. The fibres are arranged in a normal pattern with slight oedema in between the bundles of the muscle fibres. Architecture of the heart muscle fibre appears to be normal without any evidence of fibrosis (Fig. 4.1).

Section of the left auricle from heart (No. 23; age 38) shows wide separation of the fibres of the muscle bundles with oedema without any increase in the connective tissue in the muscle (Fig. 4.2).

Section of the heart from the left auricle from heart (no. 14; age 28) showing oedema in between the muscle bundles with evidence of fibrosis in right lower corner and left upper corner (Fig. 4.3).

Section of the heart (no. 7; age 23) from the left auricle showing early fibrosis in between the muscle fibres green in colour in the central area and also in the patchy areas in the lower bottom. Muscle fibres appear red (Fig. 4.4).

Section of the heart (no. 21; age 43) from left ventricle shows connective tissue in between the muscle fibres, pale green in colour and muscle fibres red in colour appear disrupted (Fig. 4.5).

Section of the wall of left ventricle of heart (no. 10; age 28) shows increase in the connective tissue in the central
Explanation of microphotographs:

Fig. 4.1:  H & E x 80
(Heart no. 3, age-30, site-left ventricle)

Fig. 4.2:  H & E x 80
(Heart no. 23, age-38, site-left auricle).
Explanation of microphotographs:

Fig. 4.3: H&E x 80
(Heart no. 14, age 28, site-left auricle).

Fig. 4.4: Masson’s-trichrome x 400
(Heart no. 7, age 23, site-left auricle).
Explanation of microphotograph:

Fig. 4.5: Masson's trichrome x 400

(Heart no. 21, age 43, site - left ventricle).
area and also in the bottom part around the vessels. The muscle bundle fibres are separated by oedema (Fig. 4.6).

The same section under high power (in colour photograph) indicates the amount of fibrosis in green and amount of muscle fibres in red (Fig. 4.7).

Section from the heart (no. 12; age 27) of the apex shows pericardium at the right lower corner and adjacent area shows various degree of fibrosis in between the muscle fibres replacing them to the greatest extent. In the top part some of the muscle bundles are in normal condition (Fig. 4.8).

Section of the heart (no. 25; age 35) from septum shows increase in the connective tissue in between the muscle fibres pale green in colour and isolating the muscle fibres (red in colour) in small islands (Fig. 4.9).

Section of the heart (no. 42; age 36) from apex shows thickened pericardium in the bottom. Adjacent muscle fibres shows extensive replacement fibrosis. The muscle fibres appear as small islands in a large amount of connective tissue (Fig. 4.10).

The same section in colour shows the bottom portion green separates heart muscle from the pericardium by loose areolar and adipose tissue. Muscle fibres red in colour are widely separated by green connective tissue (Fig. 4.11).
Explanation of microphotographs:

**Fig. 4.6**: H & E x 320
(Heart no. 10, age-28, site-left ventricle),

**Fig. 4.7**: Masson's trichrome x 600
(Heart no. 10, age-28, site-left ventricle),
Explanation of microphotographs

**Fig. 4.8**: H & E x 120
(Heart no. 12, age-27, site apex).

**Fig. 4.9**: Masson's trichrome x 600
(Heart no. 25, age-35, site-septum).
Explanation of microphotographs

Fig. 4.10:  H & E x 80
(Heart no. 42, age-36, site-apex).

Fig. 4.11:  Masson's trichrome x 400
(Heart no. 42, age-36, site-apex).
ON EXPERIMENTAL HEART:

Section from rat heart fed on 20% groundnut oil for 80 days shows normal pattern of muscle fibre (Fig. 4.12).

Section from rat heart fed on 20% mustard oil diet for 120 days shows increase in connective tissue in between the muscle fibre with oedema separating them (Fig. 4.13).

Same section of the heart in colour showing oedema in between the muscle fibres with green connective tissue (Fig. 4.14).

Section of the heart from rat fed on 20% mustard oil for 160 days shows further increase in the fibrosis of the muscle fibres (Fig. 4.15).

Same section under high power and in colour shows the fibrosis. The intensity and degree of fibrosis can be assessed from the intensity of green colour in various areas in between the red muscle fibres (Fig. 4.16).
Explanation of microphotograph

Fig. 4.12 H & E x 80

(Heart from rat fed on 20% groundnut oil for 80 days).
Explanation of microphotographs:

**Fig. 4.13**: H & E x 80
(Heart from rat fed on 20% mustard oil for 120 days).

**Fig. 4.14**: Masson's trichrome x 400
(Heart from rat fed on 20% mustard oil for 120 days).
Explanation of microphotographs:

**Fig. 4.15**: H & E x 80
(Heart from rat fed on 20% mustard oil for 160 days).

**Fig. 4.16**: Masson's trichrome x 400
(Heart from rat fed on 20% mustard oil for 160 days).