

Cardiac Diseases And Its Impact On Skin

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ABSTARCT

Usually physicians are familiar with the cutaneous signs in cardiac patients. They include Central and Peripheral Cyanosis, Erythremia, and erythema, Digital clubbing. Some cardiac conditions usually have diagnostic cutaneous clues. Among the association of coronary heart disease, hyperlipidemia and xanthomas is important. Leopard syndrome is the rarest syndromes which have often have characteristic skin signs. Hence with this knowledge a physician can be able to diagnose and hence treatment for these diseases can be planned accordingly.

Key words: *Coronary artery disease, Cyanosis, Leopard syndrome*

INTRODUCTION

Most of the general signs in skin are familiar to the practising physicians. Sometimes these skin signs are found on cardiac patients because of the relationship between cardiac disease and dermatological disorder. Certain rare and common cardiac diseases show specific cutaneous clues.¹This review article discusses about the cardiac diseases and its signs in skin.

CYANOSIS

- ❖ Cyanosis occurs due to reduction of (unoxxygenated)haemoglobin up to 5 gm or less. As a result of which bluish or purplish skin discoloration occurs.
- ❖ Central cyanosis is observed in congenital heart disease with intracardiac or intrapulmonary right to left shunting.²
- ❖ Where peripheral cyanosis occurs in states with normal arterial oxygen saturation but reduced blood flow such as low output cardiac failure or peripheral vascular disease.
- ❖ Sites of peripheral cyanosis are observed on nose, lips, earlobes and fingertips.
- ❖ Preductal coarctation of the aorta can be detected if the cyanosis is more on the right than the left hand.
- ❖ Whereas postductal coarctation or complete aortic interruption can be detected by an equal cyanosis on both hands.

FIGURE 1: CYANOSIS DUE TO CONGENITAL HEART DISEASE



ERYTHEMA/ ERYTHEREMIA

- ❖ Polycythemia promotes the "ruddy" complexion in white patients. A specific coloration named "erythremia" may be evident.
- ❖ Erythremia is caused due to an increased amount of oxygenated haemoglobin providing the redness along with an increased unoxygenated haemoglobin producing cyanosis.
- ❖ Erythema in face in relation with cyanotic hue, edema of face and engorged non -pulsatile neck and chest veins are the indicating sign of superior vena cava obstruction.

FIGURE 2: ERYTHEMA ALONG WITH CYANOSIS DUE TO INCREASED AMOUNT OF OXYGENATED AND UNOXYGENATED HEMOGLOBIN



DIGITAL CLUBBING

- ❖ Digital clubbing is more frequently observed in congenital cyanotic heart disease.
- ❖ Postsurgical effects of cyanotic heart disease are the combination of pink digits with clubbing frames a striking feature.

FIGURE 3: DIGITAL CLUBBING



HYPER LIPOPROTEINEMIA /XANTHOMAS

- ❖ Hyperlipidaemia is a major risk factor for Coronary Artery Disease (CAD).
- ❖ Hence thorough clinical examination of particularly young patients is very important.
- ❖ Xanthoma are more commonly seen in CAD patients.They are nothing but the lipid deposition in skin, tendon and fascia.
- ❖ Xanthoma are flat yellowish plaques observed most commonly in the eyelids.³

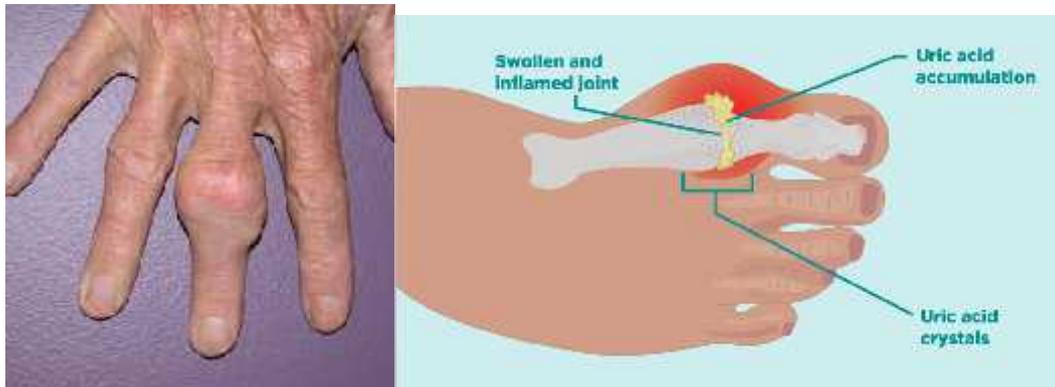
FIGURE 4: XANTHOMA IN UPPER EYELID



GOUT

- ❖ Gout and hyperuricemia are minor risk factors for CAD.
- ❖ The characteristic skin sign of gout is tophi. Tophi is nothing but the deposition of uric acid crystals (monosodium urate) in the subcutaneous tissue.
- ❖ Inflammation is caused due to acute deposition of crystals. This can be confirmed by aspirating fluid for demonstration of uric acid crystals.

FIGURE 5: GOUT



CHOLESTEROL EMBOLIZATION

- ❖ Cholesterol crystals might microembolize rarely in the lower extremities in patients with advanced atherosclerosis of the abdominal aorta.
- ❖ Indurated plaques and nodules appear in the lower extremities.
- ❖ They are associated with livedo reticularis and ulceration resembling polyarteritis nodosa⁴.

FIGURE 6: CHOLESTEROL EMBOLIZATION



EARLOBE CREASE

- ❖ Certain specific case reports in 1970's has reported the presence of the crease diagonally along the earlobes.
- ❖ This is due to the increased risk of CAD⁵.
- ❖ It still remains unclear whether this sign indicate a genetic or acquired finding.

FIGURE 7: EARLOBE CREASE



PERIPHERAL VASCULAR DISEASE (PVD)

- ❖ Around 46% to 61% of patients with known peripheral vascular disease (PVD) has an objective evidence of CAD.
- ❖ The skin overlying the affected extremities is dry and shiny.
- ❖ Painful ulcers and pulp atrophy along with loss of hair and slow growing yellowish nails may be present.

FIGURE 8: PERIPHERAL VASCULAR DISEASE SHOWING DRY AND SHINY SKIN WITH PAINFUL ULCERS



DIABETES MELLITUS

- ❖ As known earlier diabetes mellitus is the major risk factor for CAD.
- ❖ Cutaneous signs are numerous, they are PVD, neuropathic foot, diabetic dermopathy, necrobiotic lipoidica, scleredema and vitiligo⁶.
- ❖ Candidal vulvovaginitis infection is characteristic in diabetes.

FIGURE 9: DIABETIC DERMOPATHY



KAWASAKI'S DISEASE

- ❖ Kawasaki's disease (mucocutaneous lymph node syndrome) affects infants and children under 5 years of age.
- ❖ The characteristic features are persistent fever, indurative edema of extremities, membranous desquamation from finger tips, polymorphous exanthema, bilateral conjunctiva injection, strawberry tongue and cervical lymphadenopathy.
- ❖ Coronary arteritis results in coronary aneurysms formation. This is the characteristic sign which can be detected by two-dimensional echocardiography or coronary angiography.

FIGURE 11: KAWASAKI'S DISEASE



INFECTIVE ENDOCARDITIS

- ❖ Infective endocarditis (IE) shows certain cutaneous signs which are considered to be the important clues in diagnosis.
- ❖ Cutaneous signs are Osier's nodes, Janeway lesions, subungual splinter haemorrhages and petechiae.
- ❖ Oster reported painful, red finger tips in IE. They are tender. The cause is because of microembolization of infected material reaction to the embolized material from the heart valves⁷.

- ❖ Janeway lesions are papulo-nodular and are characteristically non - tender and seen on the palms and soles.
- ❖ Splinter "haemorrhages" are linear, dark red streaks beneath the nails.

FIGURE 12: INFECTIVE ENDOCARDITIS



MYXOMA

- ❖ Atrial myxomas are the most common primary cardiac tumours.
- ❖ The dermatological signs are Raynaud's phenomenon, non -blanching erythema which is a striking feature.
- ❖ Recent researchers have suggested the association of atrial myxomas with lentigines, nevometanocytic and blue nevi as well as dermal myxodematous nodules have been described as the NAME (Nevi, Atrial myxoma, Myxoid neurofibromas, Ephelides) or LAMB (Lentigenes, Atrial myxoma, Mucocutaneous myxomas, Blue nevi) syndromes⁸.

FIGURE 13: RAYNAUD'S PHENOMENON



LEOPARD SYNDROME

- ❖ The "Leopard syndrome" is an autosomal dominant disorder.
- ❖ Each and every letter of the word "leopard" denotes a feature of the syndrome.
- ❖ Lentigenes (L) is the commonest characteristic. They are multiple and present during birth but it raises during puberty. It involves the whole surface of skin except lips and oral mucosa.^{9,10}
- ❖ Electrocardiographic (E) abnormalities may be present. They are axis deviation, prolonged P-R intervals, bundle branch block, left anterior hemiblock and complete heart block. Anatomic abnormalities include hypertrophic cardiomyopathy with subaortic stenosis.
- ❖ Ocular (O) telorism might be a feature. Pigmentation may be abnormal and it is most commonly found in iris or retina.
- ❖ Earlier Pulmonary (P) stenosis was an associated characteristic feature but now aortic stenosis is more common.
- ❖ Abnormalities (A) of genitalia,
- ❖ Retardation (R) of growth and
- ❖ Deafness (D) of the sensorineural type are the other associated features of the syndrome.

FIGURE 14: LEOPARD SYNDROME



AMYLODOSIS

- ❖ In systemic amyloidosis heart is involved.¹¹
- ❖ Infiltration of the myocardium results in restrictive cardiomyopathy which has distinctive echocardiographic findings.
- ❖ Inter-atrial and/or inter-ventricular septa thickening can also be noticed.
- ❖ Cutaneous signs involve translucent papules on the eyelids, nasolabial folds, lips; neck and upper trunk.
- ❖ Areas of petechiae and ecchymoses (pinch purpura) occur due to dermal blood vessels involvement.

FIGURE 15: AMYLOIDOSIS



POST -CORONARY ARTERY BYPASS GRAFT (CABG) SURGERY

- ❖ CABG surgery is performed using long saphenous vein portions as donor grafts.
- ❖ But along the saphenous vein graft scar particularly in the distal parts on the medial aspect of lower extremities, skin diseases are encountered. ¹²
- ❖ This sign arises 2 to 6 months postsurgically.
- ❖ The cause is unknown but it may be due to post-operative thrombophlebitis and venous stasis.

FIGURE 10: POST -CORONARY ARTERY BYPASS GRAFT (CABG) SURGERY



CONCLUSION

Signs of cardiac problem in skin plays a major role in diagnosing and treating a patient. Knowledge about the cutaneous reaction of cardiac disorder is mandatory for every physician for his or her routine practice.

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