The column in this issue is supplied by Dr. Jaime A. Tschen, M.D., a dermatologist who practices at St. Joseph Medical Center in Houston, Texas. Dr. Tschen earned his medical degree from the Univ De San Carlos, Fac De Cien Med, Guatemala in 1975. Dr. Tschen specializes in dermatopathology and treats lesions, acne, psoriasis, and other skin conditions as well as conditions affecting the hair & nails. In addition to his clinical practice, Dr. Tschen engages in research, publishes studies in the *Journal of the American Academy of Dermatology*, and is a regular speaker in the Houston Dermatological Society.

THE SKIN IN THE CARDIOVASCULAR PATIENT

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Cutaneous manifestations related to cardiovascular diseases can have several etiologies. They may be part of the disease, such as hypertrophic osteoarthropathy seen in patients with tetralogy of Fallot and other congenital heart diseases. They can be directly induced by disease, such as cyanosis stemming from a congenital heart defect or edema

related to congestive heart failure. Finally, they can be a direct result of treatment, such as clopidogrel-associated thrombotic thrombocytopenic purpura or embolic gangrene resulting from surgery. The following are some common and rare examples of dermatologic manifestations seen in mostly outpatient settings.

Figures 1-3: Xanthoma/Xanthelasma. These are deposits of lipids found most frequently in the dermis of patients with hyperlipidemia. Figure 1 shows a hyperlipidemic serum immediately after drawing blood from the patient in Figure 2 who has eruptive xanthomas on the elbow. Figure 3 shows typical xanthelasma.

Figure 4: Systemic amyloidosis.

Amyloid deposits, found in many organs including the heart and blood vessels, produce characteristic cutaneous manifestations such as palpebral purpura, pinch purpura, and edema—all of which are a direct result of vascular fragility and incompetence. Figure 4 demonstrates the clinical presentation (Figure 4A) and the histopathology showing the amyloid deposits in and around nerve trunks in the buccal submucosa; Figure 4B: Crystal violet stain shows magenta-colored deposits.

Figure 5: Arterial ulcers. These are sharply circumscribed, distal, and painful with surrounding signs of vascular insufficiency and decreased or absent pulses.

Figures 6, 7: Livedo reticularis. This is a vascular (venous) congestion producing a reticulated pattern. It is most frequently seen on the legs (Figure 6) and feet (Figure 7) and can resolve with hyperpigmentation. Cardiovascular, rheumatologic, and endocrine disorders as well as medications and malignancies can produce the changes.

Figure 8: Purpura. Extravasation of red blood cells can be the result of vascular fragility and or anticoagulant therapy. Pre-existing contributing factors such as sun damage or prolonged use of systemic or topical corticosteroids frequently aggravate the presentation.

Figures 9, 10: Emboli. Embolic lesions in the skin can manifest as livedo reticularis and/or distal infarcts. They are most frequently seen in the cardiovascular patient after catheterization or institution of anticoagulants and less frequently with atrial fibrillation and infective endocarditis. (9A) Ulcer from atheromatous emboli. (9B) Biopsy showing cholesterol embolus inside a vessel. (10) Cutaneous lesions from bacterial endocarditis.

Figure 11: Radiation dermatitis. Acute and chronic radiation dermatitis are usually the result of unexpected prolonged fluoroscopic procedures. A well-demarcated area of erythema and induration are seen. The pathologist needs the clinical information to search for the subtle clues in the biopsy.

Figure 12: Calciphylaxis. This is a poorly understood syndrome of vascular calcification and skin necrosis with large areas of purpura. Subcutaneous blood vessel calcification and thrombosis are seen in relation to parathyroid with concomitant calcium and phosphorus abnormalities. These are most frequently in patients with renal failure, although very rare cases without renal abnormalities have been described.

Figure 13: Drug eruptions. (A) Although most drug eruptions are not life threatening, some can produce significant morbidity (such as toxic epidermal necrolysis) and mortality. Antibiotics (mainly sulfonamides), anticonvulsants, allopurinol, and nonsteroidal anti-inflammatory medications are the most frequent causes. (B) Histopathology will show full thickness epidermal necrosis as the most important finding.

Figure 14: Psoriasis. This disease has recently been recognized as a risk factor for metabolic syndrome and as cause for atheroma formation due to the large areas of inflammation. See three examples of manifestation.