Cutaneous squamous cell carcinoma (SCC) is the most common skin cancer in much of the world (1). Although it can occur in any anatomic location on the body, it tends to develop from a predisposing cutaneous dysplasia rather than de novo. The overwhelming majority of cutaneous squamous cell carcinomas develop within solar (actinic) keratoses and rarely are aggressive. However, de novo lesions and those that develop from scar keratoses, chronic radiation keratoses, tar keratoses, thermal keratoses, or on mucosal surfaces have a greater malignant potential (1, 2).

The SCC is a malignant proliferation of the keratinocyte of the epidermis, the most abundant epidermal cell type. The natural history of SCC may be modified substantially by the patient's immunologic status (3). For example, patients with cutaneous T cell lymphomas on chemotherapy are at risk of developing aggressive cutaneous squamous cell carcinomas.

Incidence and Etiology

In the United States alone about 400,000–500,000 people develop nonmelanoma skin cancer each year, with about one fifth or 80,000–100,000 of these skin cancers being squamous cell carcinomas (4). The risk of SCC is principally related to two factors: cumulative sun exposure and the degree of pigmentation. Those at greatest risk are light-completed individuals with excessive sun exposure, because SCC is most often sun-induced, evolving from actinic keratoses in these individuals.

The annual age-adjusted incidence rate for cutaneous SCCs in white males in metropolitan New Orleans was 154 per 100,000 in 1977–78, as opposed to 30 per 100,000 in Detroit (4). Detroit is situated at a latitude of 42° north, versus one of 30° at New Orleans, in conformity with the principle that the annual amount of ultraviolet light in its principal carcinogenic range (UVB) reaching the earth's surface tends to increase with decreasing latitude, producing a higher incidence of sun-induced skin cancers. However, other factors such as altitude and low annual precipitation may affect UVB levels, so that Albuquerque, New Mexico has a higher UVB index than New Orleans despite being more northerly in latitude. In fact, the incidence of SCC in Albuquerque among whites (Anglos) was 180 per 100,000. Among Americans, the annual age-adjusted rate for nonmelanoma skin cancer among whites was 233 per 100,000 (four fifths of which is basal cell carcinoma and one fifth SCC), while the corresponding rate for black Americans was only 3 per 100,000. An evaluation of the Tumor Registry of Charity Hospital in New Orleans showed 163 black patients with a total of 176 SCCs of the skin between 1948 and 1979 (5). SCCs were noted to be about 20% more common in this group than basal cell carcinomas. Strikingly, a mortality of 18% was noted, and this was attributed to the fact that these SCCs were induced in chronic scarring processes rather than in actinic keratoses.

Actinic keratoses can and do occur in blacks, sometimes predisposed to by hereditary factors such as a very light complexion or by albinism. People of intermediate pigmentation, such as Polynesians and Asians, have a rate of incidence of SCCs intermediate between light-completed whites and dark-completed blacks (6, 6a). However, one group at very high risk of skin cancer, whether residing in their country or elsewhere, are the Celts, who genetically tend to burn
and not tan (7). Such skin cancer-prone individuals tend to be fair-complected, have light-colored hair and blue eyes, and tan poorly. Prolonged erythema after ultraviolet light exposure may help to identify such individuals.

Cutaneous SCCs are about one third as common in white women as they are in men. For example, among white women in Detroit, the annual age-adjusted incidence per 100,000 for 1977–78 was 11, versus 49 for New Orleans and 63 for Albuquerque in Anglos (4), about one third of the incidence for white men in these respective cities. Overall, men have greater solar exposure than women, owing to differences in clothing usage patterns and leisure time activities. Among light-complected people, the areas of predilection for SCC varies with sex and corresponds to exposed areas. Balding scalp is an excellent site for the development of SCC. In blacks, SCCs tend to display no preference for sun-exposed areas (5), probably reflecting the lack of importance of solar induction for them.

In evaluating a cutaneous cancer or precancer, one should consider the possible carcinogenic agents involved. Exposure to ionizing radiation or arsenic years earlier may explain a new skin cancer. Sometimes the clinical stigmata of arsenic exposure may be present. A chronic scarring or inflammatory process may predispose; these include chronic ulcers, burn scars, chronic osteomyelitis, hidradenitis suppurativa, epidermolysis bullosa dystrophica, granuloma inguinale, lympho- granuloma venereum, discoid lupus erythematosus, or lupus vulgaris (5). A lack of histologic evidence of solar elastosis should alert the clinician that the lesion is not an actinically induced one (Figures 5.1-5.3).

Chronic immunosuppression predisposes to the development of nonmelanoma skin cancers, both basal cell carcinomas and SCCs (3, 8–12). In a recent study (9), 523 consecutive white patients were evaluated after renal transplantation, which was found to increase the risk for developing nonmelanoma skin cancer. SCCs predominated over basal cell epitheliomas by a ratio of 2.3:1, versus the expected ratio for the general white population of 0.2:1. In addition, both types of skin cancers tended to develop at an earlier age than in the general population. SCCs tended to be more aggressive clinically, with a greater chance of exhibiting metastatic behavior. This study confirmed other earlier ones. Immunosuppression, ultraviolet light, and other carcinogenic stimuli such as human papilloma virus infections may act synergistically to increase the potential for skin cancers in these patients. Anorectal SCCs in homosexual men may be associated with human papilloma virus infection and immunosuppression (13). The use of cyclosporine as a chronic immunosuppressive therapy may further favor the tendency to develop nonmelanoma skin cancers (11). Previous exposure to cutaneous carcinogens and continued exposure after immunosuppressive therapy may be an important predisposing factor, especially in patients who have received long-term photochemotherapy for psoriasis (10). In immunosuppressed patients, multiple SCCs may appear at once and exhibit an eruptive quality (8).

The incidence of squamous cell carcinoma increases with age (4, 6). For example, it seems to