

who had struck her bare heel on a stone 8 years before. A tumor developed at this site and spread to the external malleolus and to the toes. In a third case of alleged traumatic endothelioma, which is of more recent date and which was reported by Downing and Mallory, a soldier, who had been hit by a shell splinter in the left side of the neck and shoulder in 1918, developed three months following the injury a deep-seated swelling of the neck, after the superficial abrasions had healed readily. The swelling increased in size and became gradually covered with red and blue spots and nodules, composed of telangiectatic vessels. New lesions continued to appear. Upon excision the neoplasm was shown to be an endothelioblastoma invading the lumina of veins and penetrating into the surrounding muscle tissue. As there had been no evidence of a preexisting vascular abnormality, it was assumed that the endothelioma was the result of a traumatic arteriovenous communication. The increased pressure exerted upon the walls of the small veins was thought to have caused an excessive stretching of these elements together with a dilatation of the venous lumina. Secondary endothelial proliferation and vascular sprouting stimulated by these conditions ultimately got beyond control and led to the neoplastic end result.

It is sometimes difficult or even impossible to distinguish clearly between traumatic angiomatous responses and hyperplastic, regenerative, vascular proliferations in organized hematomas [telangiectatic granulomas (Coenen)]. This situation is illustrated by a case recorded by Mailer. The description mentioned the development of an angiomatous tumor two months after the bruising of the triceps muscle. It is significant, concerning the developmental mechanism and character of the vascular proliferation observed in the injured muscle, that it seemed to originate from the wall of an intramuscular hematoma and to consist of a hyperplastic proliferation of capillaries and small arteries. It is doubtful whether these vascular convolutes represented actually a hemangioma, or were an extraordinary response of vascular elements of a regenerative and resorptive character, elicited and stimulated by the blood clot. Injured blood vessels may regenerate in an atypical fashion by forming large varicosities and open spaces lined by endothelium, which ultimately assume the character of hemangiomatous formations (Andrei).

The experimental production of angiomas was accomplished by several investigators. Löwenthal reported an endothelio-sarcoma of the liver in a mouse following intraperitoneal injection of tar. McIntosh observed the appearance of endotheliomas and angio-endotheliomas among other tumors in the pectoral muscle of chickens after the intrapectoral introduction of tar.

C. ANGIOMYONEUROMAS (GLOMUS TUMORS)

The relatively uncommon tumors of the glomus [the arteriovenous short cut of the skin important for the regulation of body temperature (Popoff)] show a frequent causal relationship to trauma, according to the data recorded