G44 Sphenoid Sinus Petechiae: Incidence and Significance

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After attending this presentation, participants will gain insight as to the incidence and significance of sphenoid sinus petechiae.

Purpose: Petechial hemorrhages, while a non-specific finding, may be indicative of an asphyxial death. Many studies have reviewed the importance of petechiae in a variety of sites, such as the conjunctiva, skin or visceral surfaces, however information regarding petechiae of the sphenoid sinus mucosa is not often commented on. The consensus of many investigators suggests that the pathogenesis of petechiae is related to the combined effects of increased venous pressure and hypoxic damage to endothelial cells, although the latter has been discounted by some authors. It is surmised that petechiae of the sphenoid sinus occur by the same mechanisms. The following investigation aims to demonstrate the significance of petechiae discovered in the sphenoid sinus, as well as to correlate their presence in conjunction with petechiae at other sites on the head.

Materials and Methods: The Southwestern Institute of Forensic Sciences in Dallas, Texas conducts approximately 3500 autopsies per year. Over a 30-day period, a series of autopsies were prospectively examined for the presence or absence of petechiae of the sphenoid sinus. Near the conclusion of the autopsy, i.e., after all organs had been eviscerated, the roof of the sphenoid sinus was removed via a triangular shaped opening made with a Stryker saw. Cuts were made through the lesser wing of the sphenoid bone on each side of the sphenoid sinus and just anterior to the sella turcica. Once the piece of bone was removed, the sphenoid sinus mucosa was examined with the aid of a halogen lamp or penlight. Petechiae were described as none, few or many; the latter equating to too numerous to count. Other variables documented in each case were: age, race, sex, cause and manner of death, the presence or absence of facial or conjunctival petechiae, body position at the time of death and whether or not cardiopulmonary resuscitation was attempted.

Results: As with petechiae identified in other sites, the presence or absence of sphenoid sinus petechiae neither confirms nor disputes the cause of death. However, they are seen in certain types of deaths with a higher frequency than others. In cases where autopsy findings are subtle or vague, such as in drowning deaths or certain asphyxial deaths, the presence of sphenoid sinus petechiae can be useful corroborative evidence to support a particular cause of death. The position of the body at the time of death is important information when interpreting the usefulness of sphenoid sinus petechiae, as they are seen with increased frequency in specific body positions. While not specific for any particular cause of death, sphenoid sinus petechiae can provide pathologists yet another piece of information in certain settings, and when interpreted in the total case context, help support a particular cause of death.

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