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Editorial

Sophie Spitz: A woman ahead of her time

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Sophie Spitz, M.D. Reproduced with permission from Oxford University Press (Ash, 1958).

Sophie Spitz was an American pathologist, born on February 4, 1910 in Nashville, Tennessee (Allen, 1991). Spitz was exposed to medicine at an early age because her uncle, Herman Spitz, was a clinical pathologist (Austin and Repatriation Medical Centre, 2018). She attended Vanderbilt University for her undergraduate studies and subsequently Vanderbilt University School of Medicine, from which she graduated in 1932 (Allen, 1991; Austin and Repatriation Medical Centre, 2018).

After graduation, Spitz completed her internship and residency in pathology at the New York Infirmary for Women and Children (Allen, 1991). In 1941, she was named assistant attending pathologist at the Memorial Hospital for Cancer and Allied Disease (Spatz and Barnhill, 1999). In 1942, she married Arthur Allen, a fellow pathologist. Around this time, she enrolled in the Army Institute of Pathology where she served as a pathologist. After World War II, she returned to the New York Infirmary and worked at the Memorial Sloan-Kettering Cancer Center, where she conducted her famous juvenile melanoma study (Austin and Repatriation Medical Centre, 2018).

Sophie Spitz died at the age of 46 from metastatic colon cancer. At that time, she held the position of director of pathology at New York Infirmary (Allen, 1991; Austin and Repatriation Medical Centre, 2018). In her death, Sophie Spitz left behind her mother, Mrs. Florence Spitz, and her two brothers, L. J. Spitz and Samuel H. Spitz, who were both physicians (The New York Times, 1956).

During a time in U.S. history when only 6% of physicians were women, Spitz made a name for herself in the field of medicine (Care, 2015). She was the first to describe the histologic characteristics of lesions she named juvenile melanoma (Spatz and Barnhill, 1999). Prior to her identification, these tumors were diagnosed as childhood malignant melanoma based on their histologic features. The lesions often followed a benign clinical course, lacking the typical aggressive features of melanoma.

Spitz created a study that compared lesions diagnosed in 13 children as malignant melanoma with lesions diagnosed in a group of adults as malignant melanoma. The children in the study were ages 18 months to 12 years, and the adults were ages 14 to 19 years. Of the 13 children Spitz followed in the study, one died from malignant melanoma that metastasized wildly. The other 12 participants had lesions that were locally excised without recurrence or metastases. Spitz described the histologic similarities among the biopsy specimens of the tumors that followed a benign course. The common features she identified, and which we still recognize today, included changes in the epidermis including hyperkeratosis and patchy parakeratosis, the presence of large acidophilic cells, mononuclear or multinuclear giant cells, occasional mitotic figures, pigment located in the superficial part of the lesion, inflammatory changes, edema in the dermis and epidermis, and capillary dilation in the papillary dermis.

The 12 surviving patients were followed longitudinally, and no other fatalities occurred (Spitz, 1948). The results of this study were

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detailed in the groundbreaking article "Melanomas of Childhood," published in the *American Journal of Pathology* in 1948. The study challenged the standard of practice at the time relating to the diagnosis of melanomas and benign nevi in children. Additionally, the subsequent case reports and articles that followed Spitz's identification led to her original paper being cited >700 times (Spatz and Barnhill, 1999). Spitz wrote this paper at a time when overt challenges in medicine existed for women, including discrimination, harassment, and working in a male-dominated environment (Care, 2015). Her legacy lives on, not only as a brilliant physician, but also has a champion for women in medicine.

Juvenile melanomas, later termed Spitz nevi in honor of Sophie Spitz, often arise during childhood but can occur at any age (Harms et al., 2015). They represent a solitary, acquired nevus, although rare cases of congenital Spitz nevi have been documented. These lesions are relatively uncommon and account for approximately 1% of surgically removed nevi. On clinical examination, Spitz nevi present as a single, dome-shaped, pink to reddish-brown papules or nodules that are usually <6 mm in diameter (Dika et al., 2017). The lesions can be pigmented or nonpigmented. Involvement of the central face is a classic presentation, but Spitz nevi also commonly arise on the head, neck, or lower extremities (Busam et al., 2014; Yeh et al., 2015).

Histologically, Spitz nevi are composed of spindled and/or epithelioid melanocytes with large nuclei and abundant cytoplasm (Dika et al., 2017; Massi and LeBoit, 2004). The melanocytes seen in Spitz nevi are often larger than those in other forms of nevi, but they generally display uniform features (Lott et al., 2014). Frequently, solitary melanocytes and nests of melanocytes occurring above the dermo-epidermal junction are detected. Additionally, Kamino bodies, which are rounded eosinophilic globules, are often seen (Dika et al., 2017).

Dermoscopy, a tool that magnifies the skin surface, is a useful resource for diagnosing Spitz nevi (Dermoscopy, 2018). Under microscopy, Spitz nevi display varying patterns that assist practitioners with diagnosis. A starburst pattern is found in 53% of pigmented Spitz nevi. Additionally, a globular pattern can be observed, as well as a vascular pattern that includes dotted or comma vessels (Dika et al., 2017). The management of Spitz nevi is currently an evolving area of study. Incompletely removed Spitz nevi may display pseudomelanomatous changes on subsequent biopsy, which presents a diagnostic challenge for providers and makes treatment more difficult (Sulit et al., 2007). For this reason, many dermatologists elect to completely remove Spitz nevi when clinically feasible.

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