Warthin-starry Silver Method Showing Particulate Matter in Macrophage[1]

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Objective To verify whether Warthin-Starry (WS) silver method could detect the air particulate matter (PM)/dust particles (Ps) located within the macrophages *in situ.* **Methods** There were 26 autopsy cases that resulted from cerebral hemorrhage (group A), silicosis (group B), and fetal death during pregnancy (group C). Samples were collected separately and serial sections were prepared from the lungs and lymph nodes and stained with hematoxylin and eosin (HE), WS silver, immunohistochemistry of CD68. Furthermore, ultrathin sections were taken from the WS positive serial sections of groups A and B. Ps were observed under a transmission electron microscope (TEM) and the elements of Ps were measured by X-ray spectrum analysis (X-RSA). **Results** In both groups A and B, WS staining was positive for the larger and fine Ps, the so called "dust cells", but HE staining was almost negative for fine Ps. In group C, no larger or fine Ps were found. Immunohistochemical staining of CD68 certified that the "dust cells" containing Ps were macrophages. The results of TEM and X-RSA proved that the structure and elements of Ps belonged to PM indeed. **Conclusion** WS staining is a better than HE staining in showing the location of PM within macrophages.

Key words: Fine particulate matter; Warthin-Starry stains; Macrophage; Dust cell

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