# DETECTION OF *Bartonella henselae* DNA BY PCR TO CONFIRM THE HISTOPATHOLOGICAL DIAGNOSIS OF CAT SCRATCH DISEASE

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Patients with cat scratch disease (CSD) manifest skin lesions and regional lymphadenopathy with the etiological agent being *Bartonella henselae*. Histopathologically, though the lymph nodes reveal the presence of granulomas with stellete micro-abscesses these features are not specific for CSD. Therefore, it is not possible to arrive at a definitive diagnosis of CSD using histopathology alone. However, an accurate diagnosis of CSD in a patient with lymphadenopathy is important to differentiate this benign disease from a neoplastic process. Therefore, the objective of this study was to detect *Bartonella henselae* DNA by polymerase chain reaction (PCR) to confirm the histopathological diagnosis of CSD.

Formalin fixed, paraffin embedded (FF-PE) lymph node biopsies of five patients with histopathologically suspected CSD were used for the study. DNA extraction was performed with 10 mg of FF-PE tissue using phenol: choloroform: iso-amyl alcohol (25:24:1) extraction method. Primers p24E and p12B were used to amplify 296 bp fragment of the Bartonella 16S r-RNA gene by PCR. Following PCR, the PCR products were separated on 2% agarose gel containing ethidium bromide. The gel electrophoresis revealed very faint bands after 1$^{st}$ PCR. Therefore, PCR was performed again using 2µl of the 1$^{st}$ PCR products as the DNA template.

Results following the 2$^{nd}$ time PCR indicated the presence of bands on the gel at approximately 296 bp level in two samples out of five. These bands indicate the presence of *Bartonella henselae* DNA in the respective samples and can be used to confirm the histopathologically suspected CSD in these patients. However, in addition to a disease that resemble CSD histopathologically, use of fixed tissue or only one set of primers may have contributed to the negative results observed in the remaining three patients.

Histopathological examination of lymph nodes requires an invasive surgical procedure. However, even aspirates from a lymph node are sufficient to arrive at a definitive diagnosis when using PCR. Therefore, in addition to providing a definitive diagnosis for CSD, PCR has the advantage of requiring a very small amount of material that can be obtained with a minimally invasive method such as fine needle aspiration biopsy.

In conclusion, PCR is a useful method to confirm the diagnosis of CSD. In addition, as histopathology does not give a definitive diagnosis for CSD, diagnosis of the disease in the future should base on an improved PCR technique.

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