The presence of oligoclonal bands (OCBs) in cerebrospinal fluid (CSF) of multiple sclerosis (MS) is now well established. On the other hand, a monoclonal response can represent the initial stage of an oligoclonal response. We aimed to evaluate the presence of an isolated CSF monoclonal immunoglobulin (Ig) band and to analyse the clinical and radiological diagnosis of those samples with a single Ig band. 3524 CSF samples using agarose gel isoelectric focusing were re-examined. In 1.4% a monoclonal band in CSF was detected. 27.5% of them were diagnosed clinically isolated syndrome (CIS), 49% relapsing remitting multiple sclerosis (RRMS) according to Poser criteria, 11.8% secondary progressive MS, and 2% radiologically isolated syndrome (RIS). The mean disease duration and the mean EDSS score of MS patients excluding CIS and RIS patients were 78.6±69.3 months and 2.6±1.8 respectively. 90% of them met all the Barhoff criteria. The remaining was diagnosed other inflammatory neurological diseases (OIND) (9.8%) (1p with CIDP, 1pt with NMO, 1pt with paraneoplastic syndrome, 2pts with ADEM). The presence of an isolated CSF monoclonal Ig band is rare. Although most of the samples were diagnosed as MS according to both clinical and paraclinical (MRI) parameters, they had only a single Ig band in CSF. Not only OCBs, but also an isolated CSF monoclonal band might be a cornerstone for the diagnosis of MS at least for some patients. On the other hand, single CSF band is an indication for repeating a CSF analysis, unless other criteria clearly point to a diagnosis of MS.