A study on speaker verification with nonaudible murmur (NAM) segments using multiple session data was conducted. NAM is different from normal speech and is difficult for other people to catch. Therefore, a text-dependent verification strategy can be used in which each user utters her/his own keyword phrase so that not only speaker-specific but also keyword-specific acoustic information is utilized. A special device called a NAM microphone worn on the surface of the skin below the mastoid bone is used to catch NAM because it is too low to be recorded using ordinary microphones. However, it is tolerant to exterior noise. This strategy is expected to yield relatively high performance. NAM segments, which consist of multiple short-term feature vectors, are used as input vectors to capture keyword-specific acoustic information well. To handle segments with a large number of dimensions, a support vector machine (SVM) is used. In experiments using NAM data uttered by 19 male and 10 female speakers in several different sessions, robustness against session-to-session data variation is examined. The effect of segment length is also investigated. The proposed approach achieves equal error rates of 0.04% (male) and 1.1% (female) when using 145-ms-long NAM segments.