Fine-needle aspiration biopsy: Is anesthesia necessary?

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Fine-needle aspiration (FNA) of inflammatory and neoplastic head and neck masses has become a widely used procedure in otolaryngology–head and neck surgery. Using both subjective (patient perception) and objective (complication rate, accuracy) criteria, this prospective study evaluated patients undergoing FNA with and without anesthesia. Seventy-five patients were enrolled into 1 of 3 study groups: group I, no anesthesia; group II, ethyl chloride spray; and group III, lidocaine infiltrative anesthesia. In general, the ease of FNA, complication rates, and accuracy rates were the same for the 3 groups. Patient perception and satisfaction rates were improved in groups II and III. Use of topical or infiltrative anesthesia may enhance the use of FNA in the anxious, nervous patient undergoing FNA of a neck mass. (Otolaryngol Head Neck Surg 1999;120:458-9.)

Fine-needle aspiration biopsy (FNAB) of inflammatory and neoplastic head and neck masses has become the gold standard for evaluation of lesions such as parotid or thyroid masses as well as metastatic disease in the neck. It is performed as an office procedure (ie, ambulatory and outpatient). It has a low complication rate and a high accuracy rate with a low false-negative diagnostics rate. FNAB can be performed with a hand-held syringe, a syringe pistol, or as recently described, a foot-controlled device. There are patients for whom anesthesia for performing a FNAB is indicated. These include overly anxious patients, children, patients who have previously undergone FNABs, patients with a low pain threshold, or those who have previously been treated for head and neck neoplasia. Other patients, however, have compared the pain associated with FNAB to that of a venipuncture. The purpose of this study was to examine the effect of anesthesia among patients undergoing FNAB.

METHOD

Participants

Seventy-five patients referred for FNAB were randomly assigned to 1 of 3 experimental groups. Informed consent for the procedure was obtained from each patient. The 3 groups were FNAB without anesthesia, FNAB with ethyl chloride spray, and FNAB with lidocaine-infiltrative anesthesia. Ethyl chloride is a highly flammable liquid that vaporizes rapidly when applied as a fine spray. It produces freezing of superficial tissues resulting in local nerve insensitivity and local anesthesia. The anesthesia effect is usually maintained for up to a minute. In the lidocaine infiltrative group, 1% lidocaine was injected subdermally using a tuberculin syringe and needle. The amount injected was usually in the range of 0.1 mL.

As can be seen in Table 1, there were 27 male and 48 female patients. The mean age of the sample was 52.5 years. The biopsies were all performed by use of a prototype foot-controlled FNAB apparatus with a 21-gauge needle. The sites biopsied are detailed in Table 2.

The parameters evaluated were the physician’s perception of the ease of the FNAB procedure (1 = easy, 2 = moderate, 3 = difficult), complications of the FNAB (present vs absent), and the adequacy of the FNAB sampling procedure (diagnostic vs nondiagnostic) (Table 3). Also, after the FNAB had been obtained, patients were assessed by a nurse (Table 3), in the absence of the physician, regarding their prebiopsy feelings (1 = very nervous, 2 = somewhat nervous, 3 = not nervous), and their perception of the pain associated with the FNAB (1 = very painful, 2 = somewhat painful, 3 = not painful). They were also asked about their overall impression of the FNAB (1 = worse than I thought, 2 = tolerable, 3 = not bad at all).

One-way analysis of variance (ANOVA) was used to analyze interval scale data, and $\chi^2$ was used to analyze categoric data. Analysis of covariance (ANCOVA) was used to adjust for any impact that age might have had on the primary outcome measures.

RESULTS

Descriptive data for the outcome measures are found in Table 3. The results indicated that there were no statistically significant differences among groups in...
terms of the ease of the FNAB ($F_{2,72} = 0.70, P > 0.05$) or the adequacy of the FNAB sample ($\chi^2_{2} = 3.2, P > 0.05$). No complications were associated with the FNAB in any study group. There were no statistically significant differences among groups in the level of pre-FNAB apprehension ($F_{2,72} = 2.56, P > 0.05$), the patient perception of pain associated with the FNAB procedure ($F_{2,72} = 0.71, P > 0.05$), or the patients’ overall impressions of the procedure ($F_{2,72} = 0.79, P > 0.05$). As noted in Table 1, there was an unexpected statistically significant difference in the mean age of the 3 study groups. To adjust for any effects that age might have had on the 3 primary outcome measures, an ANCOVA was performed with age as the covariate. The results of the ANCOVAs were consistent with the results of the ANOVAs; there was no difference among groups in the level of apprehension, perception of pain, or overall impression of the procedure.

**DISCUSSION**

FNABs are generally well accepted.\(^1\to^6\) The pain has generally been referred to as that of a venipuncture. However, there may be patients who need anesthesia. General anesthesia is generally not indicated because of the expense and risks associated with anesthesia. Patients who might benefit from anesthesia during FNAB include not only children but also those who are anxious and those who have undergone previous FNAB or treatment for other head and neck cancers.

Factors that may aid in decreasing patient anxiety and fear about undergoing FNAB include thoroughly discussing and explaining the procedure before undertaking it, allowing the patient to come back to the office to have the FNAB performed, or having family members present for support. Additionally, we have developed a brochure that is given to patients before they undergo FNAB.

The clinician’s perception of performing the FNAB did not vary, and the accuracy rates were actually the best in group I (no anesthesia). No complications were associated with FNAB in any of the 3 groups.

The patients’ perceptions of the FNAB statistically did not vary in any of the 3 groups. Another way of looking at the problem is that use of anesthesia did not adversely affect the results; thus in selected patients it can be used in those who might need it.

Is anesthesia in FNAB necessary? The answer is probably not, but it may be useful in a select set of patients. The use of topical or infiltrative anesthesia may enhance the use of FNAB in anxious, nervous patients or in children undergoing FNAB of a mass in the head and neck.

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**References**