Techniques of Multiview Videofluoroscopy

In Chapter 3 we briefly described the three basic views — the lateral, the frontal, and the base — so that the reader could appreciate the rationale behind the choice of the equipment with which to perform this procedure. This chapter will describe information provided by each of the views, methods of performance, and normal anatomy as seen in each of the views.

Prepare the Patient

It is a good idea to explain thoroughly to the patient before the radiographic examination begins exactly what the procedure will consist of. This explanation first allays the patient’s fear, which can be quite overwhelming, especially if he is young and small and sees fluoroscopic and radiographic equipment towering over him. Second, it gives the patient an idea of what the speech tasks are so that with minimal prompting he can then repeat the speech tasks when requested to, and thus reduce the amount of radiation required for the examination. In fact, it is advisable to practice the speech tasks several times with the patient beforehand. If the patient can read, then he may be given a card listing the phrases or the assistant may hold the card, with the phrases typed in large print, several feet away from the patient. (See Chapter 13 for discussion of patient preparation and Chapter 14 for speech-task selection.)

Examination Routine

The routine examination of multiview videofluoroscopy consists of the following:

1. A lateral view without the use of intranasal or intraoral contrast material
2. A barium swallow in lateral projection
3. A lateral view after intranasal barium has been introduced
4. A frontal view with intranasal barium
5. A base view with intranasal barium

As discussed in Chapter 14, for each view except the barium swallow, the patient recites a standard set of speech tasks.

Lateral View

Information Obtained

This view demonstrates the anatomy of the velum and posterior pharyngeal wall in the midsagittal plane, and shows movements of these structures during breathing and phonation (Fig. 4.1). One can appreciate the length and configuration of the velum, the location and height of the velar eminence, and the region of contact or closest approximation between the velum and posterior pharyngeal wall during maximum phonatory effort. If the opposing velar and pharyngeal surfaces touch each other, then the vertical length of the region of contact can be measured (Fig. 4.1B). The forcefulness of contact can be suggested by observing the degree of indentation of the posterior pharyngeal wall by the velum (Fig. 4.1C).

Whenever the masculine pronoun is used, the feminine pronoun is understood to be present as well.
The posterior pharyngeal wall can be observed for the presence of anterior motion during speech. This motion can be broad (Fig. 4.1D) or localized as when a Passavant's ridge (Fig. 4.1E) is present. The size and level of the ridge in relationship to the velum can be determined (see Chapter 9 for details of Passavant's ridge). If adenoids or tonsils are enlarged, their effects on palatal and tongue motion can be assessed.

One should also evaluate the timing of the movement of the velum, posterior pharyngeal wall, and tongue relative to speech so as to assess whether or not the speech mechanism is functioning in a normally coordinated manner. Abnormal speech may also be related to stiffening in the palate resulting from scarring secondary to previous surgery, so one should be alert to observe reduced pliability of the palate during phonation.

If a pharyngeal flap is present (see Chapter 10 for details), one should look for its site of origin on the posterior pharyngeal wall, its region of insertion into the velum, and the midsagittal relationships between the velum and posterior pharyngeal wall during phonation above the level of the flap. Although one usually sees almost no velopharyngeal closure at this level, occasionally there is effective midsagittal closure, which raises the question of what the functional role of the flap is in such a case.