Coronary Arterial Spasm and Collateral Circulation

To the Editor:

A case of intermittent visualization of the coronary collateral circulation is presented.

Case Report

Coronary arteriographic studies were performed on a 52-year-old man because of severe progressive angina. First, contrast material was injected into the right coronary artery and showed 100 percent obstruction in its middle portion. Then injection into the left coronary artery revealed subtotal obstruction of the left anterior descending coronary artery and of the obtuse marginal branch of the circumflex coronary artery; retrograde opacification of the distal portion of the right coronary artery was noted. After sublingual administration of nitroglycerin, repeated opacification of the right coronary artery revealed 90 percent obstruction in its middle portion, with adequate distal visualization. Subsequent opacification of the left coronary artery revealed the persistence of the subtotal occlusions described before; however, there was no retrograde visualization of the distal portion of the right coronary artery. Left ventricular angiograms showed a uniform pattern of contractility, with an ejection fraction of 65 percent. The patient did not have angina during the procedure. There was no elevation of the S-T segment before or after the first injection into the right coronary artery.

Discussion

The anatomic existence of coronary arterial collateral vessels does not imply their functional role.1-3 The case described herein gave us an opportunity to observe the anatomic presence of collateral vessels which were functional in one instance and not so in the other. It was probably the coronary arterial spasm on top of the fixed atherosclerotic narrowing that generated a large enough gradient of pressure between the distal portion of the right coronary artery and the left anterior descending coronary artery so that the collateral vessels became functional across those points.

The fact that neither angina nor ST-segment elevation developed along with the right coronary arterial spasm supports the idea that the collateral vessels protected the inferior wall from the acute transmural ischemia.4 It is interesting to speculate about the relative role of repeated coronary arterial spasm in enhancing the development of collateral circulation which is primarily affected by fixed atherosclerotic lesions.

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References


Administration of Oxygen with Mouth-Held Nasal Prongs during Fiberoptic Bronchoscopy

To the Editor:

Fiberoptic bronchoscopic procedures may result in significant arterial hypoxemia.1-3 Therapy with supplemental oxygen administered either via a fenestrated face mask, via an oxygen mask (Ventimask) providing 28 percent oxygen4 or via a modified Ventimask (Ventimask) providing 40 percent oxygen5 has been shown to protect patients. In a previous communication,4 the use of a single nasal catheter was proposed as more convenient than a face mask, but without documentation of the ability of the catheter to maintain an adequate arterial partial pressure of oxygen (PaO₂). We, too, have found that the face mask is cumbersome and that it is frequently removed for expectoration of sputum. We report the efficacy of a simple method of delivering oxygen during transnasal fiberoptic bronchoscopic procedures, ie, nasal prongs held in the mouth.

Materials and Methods

In patients undergoing transnasal fiberoptic bronchoscopic procedures with topical anesthesia with lidocaine, samples of arterial blood were drawn from an intra-arterial catheter at the following times: prior to topical anesthesia; after topical anesthesia; during the fiberoptic bronchoscopic procedure at 5, 15, and 30 minutes after entering the trachea; at the termination of the procedure, and 20 minutes after the fiberoptic bronchoscopic procedure had been completed. Samples of arterial blood were analyzed immediately to determine the PaO₂ with the use of a blood gas analyzer (Radiometer BMS3 Mk2 Blood Micro System). After the initial two samples were drawn, administration of humidified oxygen at a rate of 7 L/min from a calibrated gauge was begun via unmodified nasal prongs (Hudson cannula 1104), which were placed in the mouth and held there by looping the plastic tubing over the ears and securing it snugly at the neck. The patient was instructed to breathe through his mouth, around the prongs.

Results

Fifteen of the 16 patients had their PaO₂ in an ac-