examination by obscuring the view. Recently, I used iced isotonic saline solution for lavage successfully in order to control acute intrabronchial bleeding which had made proper visualization and diagnostic maneuvers impossible in previous attempts. Therefore, this technique is herewith introduced as a useful approach in the management of bleeding during diagnostic bronchoscopic examination.

Case Report

A 66-year-old man was admitted to the Cincinnati Veterans Administration Hospital in October 1974 for evaluation of weight loss and an unresolved left lower-lobe infiltrate. Findings from physical examination were normal, except for a few rales over the left lower lung field. Laboratory investigations were unrewarding.

Fiberoptic bronchoscopic examination was attempted, but as soon as the bronchoscope was introduced into the left mainstem bronchus, profuse active bleeding from the left lower-lobe bronchus made evaluation impossible. Despite vigorous lavage with isotonic saline, the bleeding continued. Blind biopsy specimens were taken, and the suspicious area was brushed. Microscopic examination showed only clotted blood. Also, in the presence of blood, the bronchial washing was unsuited for cytologic evaluation. Fiberoptic bronchoscopic examination was repeated a few days later. Again the procedure was unsuccessful.

The third bronchoscopic examination was performed using iced isotonic saline solution for lavage. Five-milliliter aliquots were introduced into the left lower-lobe bronchus and after about one minute were removed by suction. This maneuver was repeated seven times using a total of 35 ml of iced saline solution, by which time bleeding stopped completely. After clots were removed, an endobronchial mass was clearly visualized occluding about 80 percent of the left lower-lobe bronchus. Biopsy and brush specimens were taken under direct vision, and bronchial washings were collected.

The procedure was uneventful, and the patient developed no complications during or following the procedure. The biopsy specimen showed a well-differentiated squamous cell carcinoma of the bronchus, and the patient received a course of radiation therapy.

Discussion

Endobronchial hemorrhage during bronchoscopic examination could present a major problem in terms of adequate localization of the lesions and diagnostic maneuvers. This could sometimes be managed by lavage with saline solution or topical application of epinephrine solution. But in certain instances, such as the present case, the usual measures fail to allow a successful study to be performed. Therefore, more complicated surgical procedures, such as mediastinoscopy and thoracotomy, may become necessary. I have found that iced isotonic saline solution is helpful in the control of bleeding and that it could save the patient from other more traumatic procedures. This technique has potential value in the diagnostic approach to the problem of hemoptysis in general. Endobronchial bleeding in the majority of cases is unifocal, originating from a segment. Therefore, iced saline lavage of the diseased segment should not cause any significant degree of physiologic derangement, even when large volumes of saline solution are used.

I believe that iced saline lavage was of definite value in the case reported and that clinical trials are justified to assess its value in bronchoscopic diagnosis and management of diseases associated with intrabronchial bleeding.

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References


Midsystolic Clicks and Tricuspid Valvular Prolapse

To the Editor:

Midsystolic clicks occurring with clinical evidence of bacterial endocarditis and signs suggestive of tricuspid insufficiency were described in two drug addicts by Bashour and Lindsay (Chest 67:620-621, 1975). These findings were attributed to tricuspid valvular prolapse similar to mitral valvular prolapse. No echocardiographic, angiographic, or surgical results were given.

Figure 2 of Bashour and Lindsay shows the appearance in inspiration of an S4, a midsystolic click, and a systolic murmur appearing early in systole before the systolic click. These findings are not analogous to the finding of midsystolic clicks with mitral valvular prolapse, in which an increase in left ventricular end-diastolic volume causes the midsystolic click to occur later in systole and in which the systolic murmur occurs after the systolic click. Inspiration decreases left ventricular end-diastolic volume but increases right ventricular end-diastolic volume. Therefore, inspiration should cause tricuspid valvular prolapse and the accompanying systolic click to occur later in systole. Figure 2 of Bashour and Lindsay demonstrates an early systolic sound which gradually occurs later in systole during inspiration.
and is labelled "SC" (systolic click) during inspiration. Their Figure 1B demonstrates similar findings, but with less change of the systolic click to later in systole with inspiration. The systolic click in both of their illustrations actually appears to become louder in early expiration. Such changes would be analogous to the systolic-click changes with mitral valvular prolapse. The early systolic murmur appears to be unrelated to tricuspid valvular prolapse and might be a functional early-systolic right-ventricular flow murmur.

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REFERENCES

To the Editor:

Dr. Sassé’s observations on the auscultatory findings associated with the click-murmur syndrome in mitral valvular disease are certainly appropriate. At least one of these observations seems to support our view that in our cases the systolic click and murmur originated from the tricuspid valve. As Dr. Sassé points out, maneuvers which increase left ventricular volume result in the movement of the mitral systolic click later into systole. Inspiration, which augments right ventricular filling, results in a similar movement of the systolic click away from the first heart sound in our cases, reinforcing the notion that the clicks originate from the tricuspid apparatus.

Dr. Sassé correctly points out that in the classic situation the systolic murmur has its onset with the midsystolic click. A number of published phonocardiograms, however, indicate that the click may occur within the murmur. An example of this is Figure 1A in the report by Epstein and Coulshed cited by Doctor Sassé.

The point of our report was to indicate the probability that isolated tricuspid valvular disease could produce auscultatory findings similar to those described in mitral valvular prolapse. Dr. Sassé correctly points out that proof is lacking in our cases and that the diagnosis of isolated tricuspid disease is circumstantial. It will be difficult to accumulate a large series of cases of systolic clicks emanating from an isolated tricuspid lesion and to define all of its auscultatory features.

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IPPB: Yes or No?

To the Editor:

With reference to the interesting exchange of views in the April issue (Chest 67:469-472, 1975) between Dr. Martin Gold, who points out that the field of intermittent positive-pressure breathing (IPPB) therapy has grown into a gigantic business while the therapy itself remains a failure, and Dr. Theodore Noehren, who believes that despite its excesses, the field of IPPB therapy could not continue to thrive as it does were it not for some benefit to the patient, I should like to agree with both authors for the following reasons:

Therapy with IPPB can be of benefit in noncomatose patients with chronic obstructive lung disease (COLD) only in the presence of a specific indication and while observing specific modes of administration. The indication is the presence of potentially reversible airway obstruction due to mucus, edema, or spasm. The specifics of administration are the selection of a bronchodilator with a-adrenergic and \( \beta_2 \)-adrenergic\(^1\) properties, the adequate dilution (tenfold to 20-fold) of the bronchodilator with water, and the delivery of such an aerosol with machine inspiratory flow rates set to match those needed by the patient, which, in the case of airway obstruction, means low flow rates. Failure to comply with the specifics of administration just outlined usually results in failure of IPPB treatment, thus confirming Dr. Gold’s hypothesis.

The field of IPPB therapy continues to grow not only because it is a good moneymaker, but also because, if properly administered with the indications set forth above, IPPB gives most patients with COLD five advantages which cannot be as readily obtained by other means: (1) treatment and prevention of ventilatory failure and CO\(_2\) retention, (2) more effective bronchodilation than with a hand bulb or pressurized aerosol, (3) improvement in intrapulmonary gas mixing, (4) reduction in airway resistance by adjusting inspiratory flow rate to the degree of patency of the patient’s airways, and (5) reduction in the work of breathing. It must be stressed emphatically that none of these advantages

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