

25 minutes for the latter. . . . The hemorrhagic tendency, once developed, is likely to persist until the prothrombin index rises to 30 per cent or more and the coagulation time falls below 20 minutes."

"Four cases received repeated transfusions of fresh blood in an effort to elevate the circulating prothrombin and diminish the bleeding tendency. In none of these instances were dramatic effects observed, and we believe that bleeding ceased only after the dicoumarin effect had worn off and the prothrombin level had become elevated. In those cases it was apparent that transfusions served only to maintain the hemoglobin level and had but little effect on the cessation of bleeding."

"The following therapeutic plan for prolongation of blood coagulability with 3,3'-methylenebis (4-hydroxycoumarin) may be found useful in certain instances. It is our present procedure to administer orally as the first dose 300 mg. to a patient weighing 130 pounds or less, or 400 mg. to one weighing over 160 pounds. On the second day an additional 200 mg. is sometimes given. The subsequent doses will depend upon the results of the coagulation and prothrombin tests. It is imperative that prothrombin tests be performed daily. If no effect is observed by the third day, a dose of 300 mg. may be given. If a marked effect is observed, however, further administrations of the drug are withheld. Repeated doses, as much as 300 mg. or more daily, may be required in resistant cases." 18 references.

A. W. F.

MOLONY, C. J.: *Postoperative Pulmonary Collapse in Childhood*. Am. J. Dis. Child. 66: No. 3 (Sept.) 1943.

"Atelectasis may be defined as an airless state of the lungs; originally coined to refer to the variety found in newborn infants, the word now com-

monly denotes any collapse of the alveoli, no matter what the cause. Atelectasis was first described satisfactorily by Gairdner, who in a series of papers from 1850 to 1853 carefully differentiated it from pneumonia both grossly and microscopically. Moreover, he laid down the principle that in most cases, both in adults and in children, it is secondary to bronchial obstruction from secretion. It is extremely interesting to note that this first real description of the condition and its cause is in complete agreement with the most widely accepted views today."

". . . In most large hospitals where pneumonia formerly was the common diagnosis in thoracic complications following an operation, now atelectasis is the more common by a ratio of 3 to 1.

". . . There is much evidence to support the idea that almost all so-called postoperative pneumonias are secondary to an initial collapse. In a children's hospital there is a much smaller incidence of postoperative collapse than in a hospital for adults because surgical intervention in the upper part of the abdomen is not as frequent and because children are not kept as immobilized and as narcotized as the elders."

"The diagnosis of postoperative atelectasis is based on the rather sudden onset of cough, fever and dyspnea in a child who has been operated on a day or so before. There are suppression of breath sounds, dullness, usual rales and usually signs of consolidation over the involved area of the lung, and by its sounds and appearance the heart seems to be shifted to the involved side. The roentgenogram shows a shadow corresponding to a collapsed lobe or to the collapsed lobes; the leaf of the diaphragm is high on the involved side and usually the heart is shifted toward the side of the collapse. Collapse of the upper lobe may or may not pull the heart toward the lesion."

Twenty-one cases are presented and analyzed:

1. Sex—about equal.
2. Age—not significant.
3. Type of operation: herniorrhaphies, tonsillectomies and adenoidectomies, nephrectomies, and general abdominal operations.

4. Anesthesia: "Ether by the open mask was the most common anesthetic used . . . in 7 cases collapse followed the closed bag method and in 8 cases it followed open ether anesthesia.

5. Symptoms: . . . the rise of temperature with collapse was marked, in the majority of cases reaching 104° F. or more. . . . The majority of children showed dullness to percussion, suppression of breath sounds, some bronchophony and sticky rales. In 62 per cent the heart was shifted clinically toward the side of the atelectasis. Cyanosis was present in only 5 cases. In general, the patients were acutely ill with sufficiently definite symptoms to allow a diagnosis to be made. All lobes of the lung were involved with the lower lobes predominating.

6. Day of occurrence: In all cases collapse had occurred by the 5th postoperative day, the 2nd day being the average for the group.

7. Day of clearing: In the cases in which the condition cleared spontaneously, it did so on an average about the 9th day.

"Summing up, postoperative collapse may be due to many conditions, or combination of conditions. Following surgical operation and anesthesia there is decreased ventilation of the lungs, a high diaphragm, and a deflation of the lungs. The tonus of the whole body and especially of the muscles of respiration is seriously decreased. The patient will not breathe deeply because of the pain and because he has probably been given large doses of a sedative. Next comes the production of some mucus due to the irrita-

tion of the anesthetic gases, to allergy to an infection of the upper respiratory tract or to causes still unknown; the mucus usually gravitates to the bronchi of the lower lobe, is not coughed up and plugging occurs. Air is absorbed distal to the mucus and atelectasis results."

"The importance of atelectasis has been the subject of much debate. There is excellent evidence that any type of atelectasis, no matter what cause, may produce bronchiectasis. . . . It is a good general rule to consider that a pulmonary complication of surgical operation may begin to produce permanent changes in the lung if it persists unresolved for 10 to 14 days after symptoms occur."

"Prophylaxis: Extremely deep anesthesia produces hypotonus and therefore must be avoided. If possible helium may be used when the closed system of anesthesia is to be the method used. At the end of the operation gases should be washed out with carbon dioxide and air."

Postoperative atropine should never be used.

"Treatment after collapse occurs . . . help the patient cough out the secretions. Potassium iodide and ammonium chloride may be used. For allergic patients epinephrine hydrochloride may help to open the bronchi and reduce swelling."

"Henderson . . . found that the tonus of muscles was brought up to normal and above by  $\frac{1}{400}$  grain of strychnine in adults."

"Inhalations of carbon dioxide for treatment and prophylaxis are questioned both clinically and theoretically. King in a study of a large series of cases at Massachusetts General Hospital showed that alternate patients did no better than the controls who were not given carbon dioxide."

"If none of these measures is effective within a few days then bronche-

scopic drainage should be instituted without delay." 26 references.

A. W. F.

KRIEG, E. G.: *Control of Postoperative Pain. Application of Cold to the Operative Site.* Am. J. Surg. **62**: 114-116 (Oct.) 1943.

"... The aim of this procedure has been the substitution of cold for narcotic drugs either in whole or in part. Our initial experience involved a patient who required appendectomy and who was violently allergic to all opium derivatives. Her postoperative pain was entirely controlled by the application of ice caps. . . .

"The temperature induced by the application of bare ice caps is approximately 6° C. There has been no evidence of any interference with wound healing in any of our cases."

"The efficacy of the ice cap is attested to by the reduction in the amount and the type of narcotic actually required. After preliminary experience it was found that codeine sulphate in 1 grain dosage was sufficient to control the residual pain in all except the occasional individual. In this series 20 per cent of the adults and 70 per cent of the children required no narcotic. . . .

"Coincident with the reduction in the amounts of narcotic administered there has been an abrupt fall in the complication attributed to anesthesia and/or operation."

"The method is simple. . . . The dressing consists of a double thickness of cellophane sealed to the skin by wide strips of adhesive tape thus providing a water-proof dressing of good conductivity. . . . the cellophane should be of the thickness of that commonly used for oxygen tents and the handling is best accomplished by wrapping in cloth as a flat package which is sterilized in the autoclave."

"The second part consists of one or more ice caps without the usual flannel jacket. The bare cap is placed directly upon the cellophane immediately after operation. In order to be effective the cold must be applied for at least one-half hour. The contents of the cap must be renewed as frequently as the ice disappears because ice water is not effective. . . . The ice must be replaced from one to three hours. In the average case the ice cap may be discarded after the second day. 5 references.

A. W. F.

MURPHY, F. C., AND POSTLETHWAIT, R. W.: *Novocain Injection for Minor Injuries in the Military Service.* Surg., Gynec. & Obst. **77**: 397-400 (Oct.) 1943.

"During the year 1942, it was necessary to admit to the hospital 55 patients with acute strain or spasm of the knee, ankle, or back. The average duration of hospitalization for these patients was 10.3 days. Since novocain injection has been used for these injuries, we have admitted only one patient with severe traumatic synovitis of the knee for 48 hours."

"... Based on our observations of the symptoms and signs in these injuries, we believe the effect of novocain injection to be due to two principal factors: first, the immediate decrease of muscle spasm, and second, the delayed but important correction of local anoxia."

Before proceeding with the injection, all patients are examined clinically and roentgenologically. The patient is placed in the recumbent position. . . . The most tender points in the injured area are then identified and marked with gentian violet and the skin prepared with tincture of mercuric thiolate or iodine. . . . Sterility must be scrupulously maintained. . . . wheal is then raised with 1 per cent novocain . . . a 1½" 21 gauge needle