

ASCORBIC ACID IN PULMONARY COMPLICATIONS FOLLOWING PROSTATIC SURGERY: A PRELIMINARY REPORT

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Broncho-pneumonia is one of the common, and often fatal complications of urologic surgery, especially prostatic surgery on patients in the seventh and eighth decade.

MacKenzie and Seng, in a review of 11,000 urologic cases, with 265 deaths, found at autopsy that the respiratory system showed involvement in a larger percentage of cases than any other system. They found the lesions to be chiefly inflammatory and listed broncho-pneumonia, lobar pneumonia, lung abscess and purulent bronchitis as the four most common. The incidence of these complications was 11.12 per cent in operations on the lower urinary tract, while in surgery about the kidney and ureter the incidence was 6.48 per cent. This has been our experience to November 1939. We had several deaths following various operations on the prostate from involvement of the pulmonary tract by lesions which were not pneumonic in type, not caused by pneumococcus, nor found to be pneumonia on post-mortem examination. The lesions more commonly noted were those reported by MacKenzie and Seng, except lobar pneumonia.

In discussing this complication with an internist, he conveyed the information that in many cases of non-typical pneumonia he had had excellent results in the use of vitamin C in controlling the cough, the accumulation in the so-called "wet chest" and foul expectoration of the aged. To Dr. Harold W. Culbertson, a keen internist of this city, our appreciation and thanks for this life-saving information. Since his suggestion, we have used ascorbic acid (vitamin C) on some forty odd patients in none of whom have pulmonary signs developed. Therefore, working to reduce the postoperative mortality due to respiratory involvement, we have given ascorbic acid to those patients who, postoperatively, showed clinical signs of moisture in the lungs with sometimes patches of consolidation, accompanied by a rise in temperature and respiratory rate. The sputum of this type of patient is mucoid in appearance, sometimes purulent and shows a great variety of organisms, but no true pneumococcus. These lesions, we believe, are apparently the result of a combination of stasis, low-grade infection, and an important third factor, namely, capillary permeability which allows the escape of abnormal amounts of serum into the tissue spaces.

The comprehensive review of the work on vitamin C, presented by Wolbach and Bessey in 1942, substantiates this line of thought. Their summary as to the rôle of ascorbic acid in the body is that its action is to maintain supporting tissue of mesenchymal origin, and deficiency results in failure of formation and maintenance of intercellular materials. No important changes in blood vessels which can be attributed to ascorbic acid deficiency have been described, nor have morphologic changes been detected in the capillaries. Their conclusion is that the capillary bleeding, so common in clinical scurvy, is probably the result of structural weakness, either due to changes in the cement substance binding the endothelial cells together or in collagen fibrils immediately adjacent to the capillaries.

It seems logical to suppose then that a reduction in the vitamin C in the body would result in weakness or increased permeability of the capillaries before the more definite signs of vitamin C deficiency, as hemorrhage, result. It is interesting to note also that in marked vitamin C deficiency, broncho-pneumonia is the most frequent cause of death.

Hartwell and Windfield found no correlation between vitamin C intake, plasma levels and the incidence of postoperative atelectasis and pneumonia.

In our series of cases, three of which are presented in some detail, no sulfa drug was used. Ascorbic acid was given in 25 mg. doses, 4 times daily, until the temperature returned to normal. The results obtained are rapid and startling. Within 24 hours, there is an appreciable reduction of temperature, in cough, and in expectoration. In 48 hours, there has been such alleviation, that the preparation can be discontinued. No attempt has been made to use the drug before surgery as a prophylaxis; but since its use in 1939, and in those cases showing pulmonary complications, its immediate use has resulted in the prevention of these complications and there has not been a single death in these aged patients from pulmonary complications since November 1939.

CASE REPORTS

Case 1. J. R., No. 143564, aged 71, had an emphysematous chest, chronic bronchiectasis, and arteriosclerosis. He was a very poor risk for open prostatic surgery; therefore, a transurethral resection was performed under spinal anesthesia. Within 24 hours his chest was full of rales of all types. He became slightly cyanotic and looked as if his exit would be by broncho-pneumonia. In discussing this case with Dr. Culbertson, he advised vitamin C. It was administered in rather small doses at the time with immediate improvement in his, general condition, and though the patient made a slow convalescence, he was discharged on the twelfth day with temperature normal, and chest clear. (See figure 1, left.)

Case 2. The case of J. J., No. 189876, aged 73, was of great interest. I had been warned that he had had pneumonia twice following hernia operations because of the anesthesia; that he had almost died after each procedure, and had been in an oxygen tent each time. He had a 2-stage suprapubic prostatectomy. Following cystotomy his temperature went up to 102°, pulse 120, lungs became full of fluid; the patient was cyanotic, and apparently in extremis. He was given 100 mg. of ascorbic acid at the first dose, and then 100 mg. in 4 divided doses thereafter per day, with spectacular results. Within 40 hours, his chest was clear, his temperature and pulse were normal, and his expectoration had dried. On September 4, 1943, following enucleation of the prostate, the same condition arose with the same improvement noted after ascorbic acid. (See figure 1, middle.)

Case 3. A physician, No. 190946, aged 75, following prostatectomy developed cough, expectoration of purulent sputum, lungs filled with rales and moisture, pulse elevated, and moderate cyanosis. The results from 25 mg. of ascorbic acid p. c. and at bed time, were most spectacular again, and within 48 hours the temperature and pulse were normal. (See figure 1, right.)

Comment. Other cases in our series are not classified because the patients were not as ill, but they probably would have been serious problems if ascorbic acid had not been used.

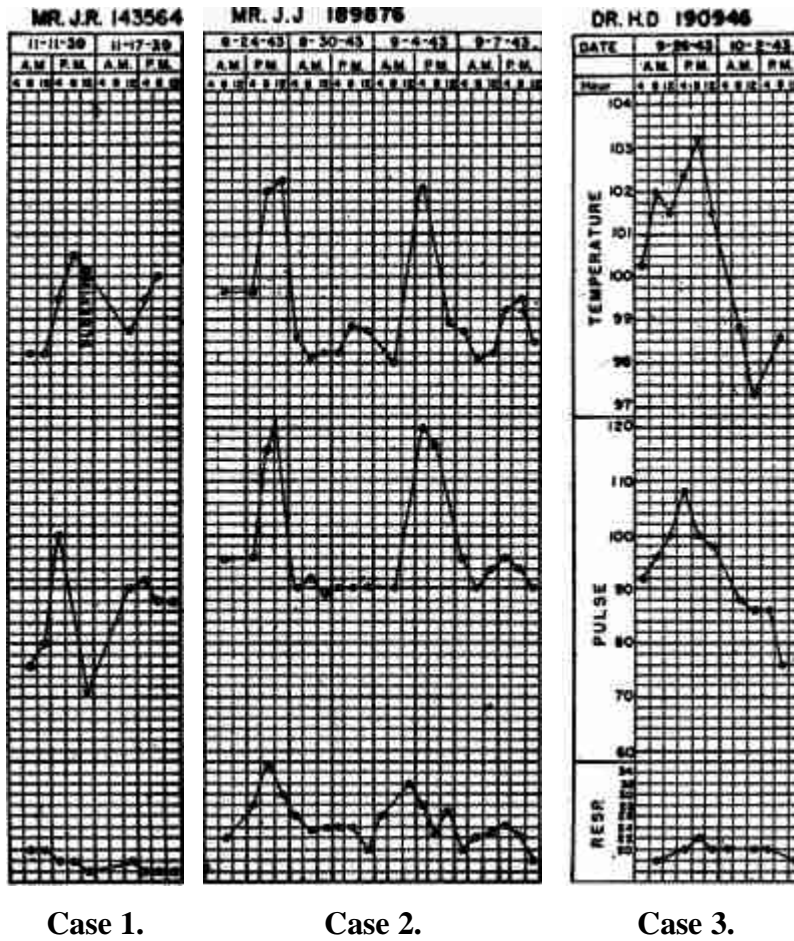


Figure 1.

SUMMARY

Pulmonary complications in old debilitated patients, requiring prostatic surgery, is a common cause of death.

Most of these cases are not truly pneumonic in character, but so-called "wet chests" due to capillary secretions.

Ascorbic acid, which increases the tonicity of these capillaries, has been of great value in alleviating these patients and restoring prompt pulmonary action by disappearance of this infiltration.

Irrespective of the blood levels or deficiency of vitamin C, ascorbic acid is a valuable adjunct in tiding these aged patients over their critical postoperative period.

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