in animal models. Their work has demonstrated a lowering of the ventricular fibrillation threshold by stellate ganglion manipulations in dogs, possibly implying a similar situation in these patients. To date, ten patients have undergone LSGR, ours being the tenth. Although followup has been relatively short (one to six years), cessation of syncopal attacks occurred in all patients, although QT interval shortening on ECG has not occurred in all cases. Some patients also remain on β-blockade therapy and therefore possibly benefit from both forms of treatment. To date, problems with denervation hypersensitivity or with nerve regeneration have not been reported.

The LQTS may be more common than suspected and currently is often overlooked. There are many ramifications: sudden death in infants, the crib deaths, may be one example. Whether the LQTS is responsible remains to be fully investigated. The possible fatal complications associated with the LQTS demand recognition and therapy early in life. This early recognition and therapy is often needed to prevent sudden death, carrying the patient into adulthood where spontaneous improvement has been noted. Further implications of this syndrome have been pointed out by Schwartz and co-workers in experiments with ventricular fibrillation threshold and arrhythmias in the setting of coronary occlusion, perhaps pointing to new considerations in coronary artery disease.

The in vivo production of life-threatening arrhythmias demonstrated here is the first such evidence in a human subject. Limited clinical experience indicates that left stellactectomy decreases the potential for the fatal arrhythmias associated with this syndrome.

Therapy should, however, follow certain guidelines. β-blockade is the first treatment of choice, but left stellactectomy is recommended if propranolol fails to control symptoms.

REFERENCES


Correlation of Phono- and Apexcardiographic Findings with Tumor Motion in Left Atrial Myxoma

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We have analyzed the genesis of physical signs in a case of prolapsing left atrial myxoma by simultaneous phono-, apex- and M-mode echocardiography. Our findings confirm a direct relationship of tumor movements with notching in the upstroke of the apexcardiogram and with the protodiastolic “tumor plop.”

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Figure 1. Simultaneous electrocardiogram, phonocardiogram, apexcardiogram and mitral echocardiogram. First notch on upstroke of apexcardiogram coincides with tumor motion away from left ventricle at onset of systole (STM) and with first component of first heart sound (S1). Second notch occurs at time of mitral valve closure and second component of first heart sound. Protodiastolic sound (TS) coincides with maximum diastolic tumor prolapse (DTM) and precedes 0 point of apexcardiogram.
A pex and phonocardiographic signs of left atrial myxoma are postulated to be due to systolic and diastolic tumor motion, although present evidence is incomplete.\(^{1,3}\) Using simultaneous echo, apex and phonocardiographic recordings we established such evidence in the following patient.

**CASE REPORT**

A 51-year-old man complained of episodes of palpitation. Cardiac auscultation disclosed a loud first sound, soft protosystolic murmur, medium-pitch protodiastolic gallop and low-pitch diastolic murmur with presystolic increase. An echocardiogram suggested left atrial myxoma (Fig 1). Cardiac catheterization showed a mitral diastolic gradient, and angiography disclosed a prolapsing, lobulated, left atrial mass (Fig 2). Successful resection of a left atrial myxoma, attached to the fossa ovalis was accomplished.

**Echo-Phono-Apexcardiographic Correlations**

The apexcardiogram showed a double notch in the upstroke (Fig 1). The first notch started 100 msec after the Q wave of the electrocardiogram and coincided with the first component of the first heart sound and with the disappearance of the tumor echoes from the left ventricular cavity. Immediately preceding tumor disappearance, there was a change in the echo pattern suggesting beginning motion. With tumor disappearance, mitral valve closing motion accelerated and valve closure occurred 20 msec later at the time of the second notch of the apexcardiogram and the second component of the first heart sound. At the onset of diastole, following mitral opening, the tumor echoes appeared again in the left ventricle. Maximal tumor excursion coincided with the onset of the tumor sound on the phonocardiogram, preceded the O point of the apexcardiogram by 30 msec and followed the end of the fast-opening motion of the anterior mitral leaflet by 70 msec.

**DISCUSSION**

Recording the motion of the atrial myxoma and mitral valve by M-mode echocardiography has enabled us to analyze the genesis of phonocardiographic signs in this case. Mitral valve closure was markedly delayed until after the tumor mass moved to the atrium. The first component of the delayed first sound and a first larger notch on the apexcardiogram coincided with tumor motion to the atrium in early systole. The second component occurred at the time of mitral closure and coincided with a second smaller notch on the apexcardiogram. At the onset of diastole, as the mitral valve opened, the tumor followed with some delay and the protodiastolic sound (tumor plop) coincided with maximal tumor displacement into the left ventricle. Immediately, the tumor moved back towards the atrium for a short time and then became stabilized, suggesting that sudden deceleration of the tumor mass, at the limit of distensibility of its stalk and the atrial septum, is the cause of the tumor plop.

**ACKNOWLEDGMENT:** Dr. R. Ribera, Chief of the Cardiac Surgery Service of C. S. F. Franco, operated on the patient.

**REFERENCES**

Severe Hypoxemia Secondary to Pulmonary Embolization Treated Successfully with the Use of a CPAP (Continuous Positive Airway Pressure) Mask*

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We describe a patient who was admitted with acute onset of dyspnea and pleuritic chest pain. The patient was in acute hypoxic respiratory failure documented by arterial blood gas levels. The severe hypoxemia was refractory to 100 percent O₂ administration. The cause of the patient’s sudden deterioration was a pulmonary embolus documented by angiography. The patient was managed successfully with heparin therapy. A continuous positive airway pressure (CPAP) mask corrected the severe hypoxemia, which otherwise would have required a more invasive method of respiratory support.

It should be the goal of every physician to search for new techniques which reduce the cost of medical care and at the same time avoid the use of the more invasive techniques with their potential risks and added cost. The recent use of CPAP is a clear example of such a new technique. The present literature is generous with examples of such situations in which the use of CPAP, applied by means of a face mask, avoided endotracheal intubation and mechanical ventilation both in children and in adults. Details of the actual mechanical setup, guidelines, and indications for the use of CPAP mask in adults with respiratory failure are also available. The purpose of this report is to illustrate yet another possible indication for this technique.

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CASE REPORT

In November 1975, a diagnosis of ovarian carcinoma, stage 3, was made in a 55-year-old woman. Treatment consisted of partial hysterectomy and bilateral salpingo-oophorectomy followed by adjuvant chemotherapy with methotrexate, cyclophosphamide and 5-fluorouracil for approximately 18 months. The patient was readmitted in September, 1977, with symptoms of pleuritic chest pain. She was in no obvious respiratory difficulty; however, chest x-ray films at the time revealed a left pleural effusion. Thoracentesis and chest tube drainage revealed approximately 3,000 ml of serosanguineous fluid. Analysis of the pleural fluid documented the presence of adenocarcinoma, metastatic to the pleural space. This was followed by instillation of intrapleural tetracycline. The patient was discharged on Oct 3, 1977, in good condition.

She was readmitted ten days later because of reaccumulation of the left pleural effusion and again no respiratory distress was noted. Chest tube drainage was initiated, followed by intrapleural instillation of bleomycin and chemotherapy with doxorubicin and vincristine. The patient was discharged in good condition five days later after removal of the chest tube.

She was readmitted the same afternoon with sudden onset of dyspnea and pleuritic chest pain, which awoke her from her nap. Physical examination revealed a 55-year-old cysticotic white woman in obvious respiratory distress. Vital signs were as follows: blood pressure 110/70 mm Hg, pulse rate 130/min and regular, respiration rate 30-40/min and shallow, and temperature of 36.40°C (97.6°F). No jugular venous distention was present. Cardiovascular examination revealed no murmurs or gallops. Examination of the chest revealed

Figure 1. Selective right pulmonary angiogram, showing saddle-shaped filling defect seen within branching right main pulmonary artery (arrow).