SERUM TRANSAMINASE ACTIVITY IN DISSECTING ANEURYSM OF THE AORTA

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Although many reports have appeared in the literature about the clinical significance of elevated serum transaminase activity, little has been written of transaminase activity, in dissecting aneurysm of the aorta. Agrest (1959) in a detailed, critical evaluation of the transaminase test does not mention its usefulness in the diagnosis of this disorder. We have found only five cases of aortic dissection in the literature in which serum transaminase estimations were performed (Kattus *et al.*, 1956; Meenan, 1957; Tredway and Kemble, 1958). We have recently had under our care three patients with dissecting aneurysm of the aorta in whom serial transaminase activities were estimated.

Case 1

This patient, a man aged 52, had been well until seven days before admission, when, while at work, he suddenly experienced a constricting retrosternal pain which radiated to the jaws, arms, back, and groins. From that time until admission the pain persisted; he had felt continually faint, cold, and clammy, and had noticed that his urinary output had diminished.

On examination he was shocked, cold, clammy, and cyanosed; pulse 120/minute and regular; B.P. 110/70 mm. Hg; heart sounds—apical triple rhythm. Femoral and all peripheral pulses were present and equal. The liver was tender and palpable two fingerbreadths below the right costal margin. There was slight ankle oedema but no rise in J.V.P.

Investigations.—Haemoglobin, 113%; W.B.C., 8,700; E.S.R., 24 mm./hour (Westergren); urea, 66 mg./100 ml.; serum amylase, 260 units; serum total protein, 5.5 g./100 ml. (albumin 3.5 g.); serum alkaline phosphatase, 13.8 King-Armstrong units/100 ml.; thymol turbidity, 1 unit; zinc turbidity, 3 units. Portable x-ray examination of the chest revealed a small left pleural effusion. E.C.G. showed changes suggestive of an old posterior myocardial infarction. Serum transaminase activity was as shown in Table I.

TABLE I.—Transaminase Activities in Case 1

Day of Illness:	7	8	9	10	11	12	13	14
S.G.O.T. ..	480		1,300			70	65	60
S.G.P.T. ..			1,300	1,100		80	300	200

Progress.—He had persistent oliguria (maximum urinary output 370 ml. in 24 hours) and rapidly developed renal failure (urea 340 mg. on eighth day). He was treated with restricted fluid intake, 40% dextrose, and hydrocortisone, erythromycin, oxytetracycline, and codein. co. orally (8 gr. (0.5 g.) throughout the admission). He died on the ninth day.

Necropsy.—There was a dissecting aneurysm of the aorta extending from the aortic valve cusps to the bifurcation, and a large subepicardial haemorrhage due to backward extension of the dissection. There was a healed infarct in the posterior wall of the left ventricle. No recent myocardial infarction was present. Histologically the liver showed hepatic congestion with fatty change, and the kidneys showed tubular necrosis.

Case 2

This man, aged 56, had been treated for essential hypertension for the past five years. Over this period he had received pentolinium, pempidine tartrate, and hydrochlorothiazide with good effect. He was well until the day of admission, when he suddenly developed retrosternal pain, which radiated into the back and lasted for two hours. Later on the pain returned more severely and was accompanied by sweating and faintness.

On examination he looked ill but was not shocked; pulse 108/minute and regular; B.P. 243/160 mm. Hg; heart sounds—apical triple rhythm. The femoral pulses were unequal, the right being of larger volume than the left.

Investigations.—Haemoglobin, 103% (15.2 g./100 ml.); W.B.C., 15,000; E.S.R., 8 mm. fall in 1 hour (Westergren); urea, 47 mg./100 ml.; E.C.G. showed ischaemic changes but no recent infarction. Serum transaminase activities are shown in Table II. Serum amylase, 120 units/100 ml.

TABLE II.—Transaminase Activities in Cases 2 and 3

Day of Illness:	1	2	3	4	5	6	7
Case 2 { S.G.O.T. ..	14	16		15	23	27	
S.G.P.T. ..						29	
.. 3 { S.G.O.T. ..	15	15	14				
S.G.P.T. ..	7	9	7				

Progress.—A diagnosis of dissecting aneurysm was made and conservative treatment with hypotensive agents was instituted. He became pain-free after 48 hours but continued to experience occasional episodes of backache throughout the admission. He died suddenly on the 17th day.

Necropsy.—There was a dissecting aneurysm of the aorta from the level of the origin of the left subclavian artery to the bifurcation. The aneurysm had ruptured into the left pleural cavity. There were ischaemic changes in the left ventricle but no evidence of recent or previous infarction.

Case 3

For the past 18 months this patient, a man aged 47, had been treated for essential hypertension with reserpine. He had remained well until the day of admission; then, while at work, he suddenly experienced lower back pain which radiated around the costal margin, down to the thighs and upwards into the neck. The pain became progressively worse, and after four hours he began to feel ill and faint.

On examination he looked ill but not shocked; pulse 80/minute and regular; B.P. 170/90 mm. Hg; heart sounds normal. The right femoral pulse was of smaller volume than the left.

Investigations.—Haemoglobin, 98% (14.1 g./100 ml.); W.B.C., 12,800; urea, 29 mg./100 ml.; serum amylase, 265 units/100 ml. Chest x-ray examination showed nothing abnormal. E.C.G. showed no evidence of recent myocardial infarction. Serum transaminase activities are shown in Table II.

Progress.—The patient continued to experience pain in the back for the next five days, although his general condition remained unchanged. A diagnosis of dissecting aneurysm was made and a laparotomy performed (Mr. L. P. Thomas). At operation the aorta was found to be the seat of a dissecting aneurysm extending from above the diaphragm to the bifurcation. A re-entry ostium was made in the abdominal aorta. He made a good recovery and was still alive and well at the time of writing.

Discussion

Clinically dissecting aneurysm of the aorta may mimic myocardial infarction, and with the discovery that serum glutamic oxalo-acetic transaminase (S.G.O.T.) was increased after the latter (LaDue *et al.*, 1954) it was suggested that this test might be of value in differentiating

the two conditions (Sampson, 1958). Reviewing this problem, Tredway and Kemble (1958) reported three cases of dissecting aneurysm of the aorta, in two of which elevated S.G.O.T. activity was found. In these two cases the maximum level of S.G.O.T. was 115 and 135 units, and this they attributed to pericardial haemorrhage due to extension of the dissection into the pericardial sac. They concluded that the test was not of very great value as an aid to the diagnosis of this disorder. In the remaining three cases reported in the literature normal values of S.G.O.T. were found. This differentiation can be of considerable importance, as the treatment of the two conditions differs, and surgical operations are now being successfully performed for the relief of aortic dissections. However, surgery is contraindicated in cases with cardiac tamponade and established anuria (Rob and Kenyon, 1960).

In only one of the cases described above (Case 1) were high values for both S.G.O.T. and serum glutamic pyruvic transaminase (S.G.P.T.) activities found. Several mechanisms could have accounted for this rise:

1. Myocardial necrosis consequent upon subepicardial haemorrhage due to extension of the dissecting aneurysm.

2. Acute congestion of the liver.—Apart from primary hepatic disorders, high values of S.G.O.T. activity (700 to 3,000 units) have been recorded in cases exhibiting acute congestion of the liver due to acute heart failure (Shields and Shannon, 1958). In Case 1 there was both clinical and post-mortem evidence of acute hepatic congestion, and we believe that this was a major factor in the production of the high S.G.O.T. and S.G.P.T. activities recorded.

3. Codeine therapy and renal failure.—Although little is known of transaminase excretion it is thought that the role of the kidney in this process is a small one, as only minute quantities of the enzymes have been found in the urine of normal subjects. This view would appear to be supported by the finding of a normal S.G.O.T. activity (18 units) in a case of anuria reported by Chinsky *et al.* (1956) and in a case of obstructive anuria we have recently observed with values of 6 units (S.G.O.T.) and 1 unit (S.G.P.T.). It has been previously suggested that codeine causes a rise in S.G.O.T. and S.G.P.T. activity (Foulk and Fleisher, 1957). Case 1 received small doses of codein. co. orally, and this may have contributed to the raised S.G.O.T. and S.G.P.T. activities. Further retention of this drug in the body, as a result of acute renal failure, may have been an added factor.

Conclusion

It would appear that in dissecting aneurysm of the aorta there can arise factors such as heart failure, with acute hepatic congestion or extension of the aneurysm into the heart and pericardium, which could elevate the S.G.O.T. and S.G.P.T. activities. On the other hand, if the dissection has not produced these complications (as in Cases 2 and 3) normal serum transaminase activities would be expected. With these facts in mind we take the view that the transaminase test has a place in the diagnosis and management of dissecting aneurysm of the aorta.

We are indebted to Dr. William Phillips, under whose care these patients were admitted, for his helpful advice and criticism, and to Mr. L. P. Thomas for permission to publish the operative details.

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LATE RECURRENCE OF CARCINOMA OF BREAST

BY

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John Hunter (1837) observed that recurrence of carcinoma of the breast may occur many years after removal of the primary tumour. He stated that the recurrence "is either in the cicatrix, or in the lymphatic glands. The contamination extends in some instances on the inside of the sternum, in the course of the internal mammary artery. Sometimes these consequent cancers appear long after the operation, even years." In an earlier lecture he had stated, "I have seen instances where it was years after all continuance of the cause was removed before the glands in the armpit had taken on diseased action after contamination."

There have now been a number of cases reported in which a very long interval has elapsed between mastectomy and the first recurrence. They are of interest because they show that the term "cure" in cancer therapy must be used with reservation and emphasize the importance of lifelong follow-up of treated cancer patients.

The case reported here is one in which recurrence was first observed thirty-five years after radical mastectomy. There was recurrence in the scar and there were also multiple skeletal deposits.

Case Report

In 1925, at the age of 39, she presented at Hampstead General Hospital with a swelling in the right breast which had been present for two years. There were two hard nodes in the right axilla. Biopsy of the breast tumour showed spheroidal-cell carcinoma, and a right radical mastectomy was performed (Mr. Bryan). No histological report is available on the operation specimen. No radiotherapy was given. There was some sloughing of the operation flaps, and convalescence was slow. She stated that since the operation she had had a small red area at the upper end of the operation scar. It measured about 0.5 cm. in diameter and was flush with the skin surface. She had remained otherwise very well. In 1954 it developed a scab, and in 1958 it began to increase in size. About this time she noticed pain and weakness of the right arm. When she was seen at Hammersmith Hospital in 1960, at the age of 73, there was an ulcer at the upper end of the operation scar 2 cm. in diameter (see Fig.). The walls of the ulcer were red, raised, and hard. The floor contained a thick scab. There was a 2-cm. hard fixed node in the right supraclavicular fossa.