PERSISTENT LACTATION WITH A NOTE ON CHIARI AND FROMMEL'S DISEASE

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The purpose of this brief communication is to draw attention to a case in which lactation had been established for the extraordinarily long period of fifteen years. Little is known of the pathology of this condition. The literature on the subject is mostly related to the association of persistent lactation with utero-ovarian atrophy. From this aspect the condition has been studied by Chiari, Braun, and Spaeth (1852-5), Frommel (1882), and more recently by Sharp (1935).

Between 1848 and 1855 Chiari, Braun, and Spaeth contributed a series of gynaecological articles from the Vienna clinics; in these Chiari discussed at some length the association of genital atrophy with prolonged lactation, and it appears that Simpson (1872) and Schroder were familiar with the syndrome. Chiari discusses two cases of puerperal utero-ovarian atrophy accompanied by persistent lactation. Frommel investigated a series of 3,000 labours and puerperia, and arrived at the conclusion that the incidence of uterine atrophy was not more than 1%. In his series the ages of the patients exhibiting the syndrome varied between 19 and 40 years, the average age being 29.6 years. Frommel believed the condition to be most common in women who had had numerous pregnancies, but it may arise after first babies.

The association of persistent lactation with utero-ovarian atrophy is known to some writers as Frommel's disease, but it would appear to be more correct to call it Chiari and Frommel's disease in view of the early writings of the elder Chiari.

Clinical observations indicate that persistent lactation and utero-ovarian atrophy coexist as described by Chiari, Frommel, and others; in some cases lactation may persist for longer periods than usual without evidence of genital atrophy, whereas in others genital atrophy may take place in the absence of prolonged lactation. Frommel records the case of a young woman who after her first pregnancy failed to lactate, but whose genital organs showed marked atrophy.

In Chiari and Frommel's disease atrophy of the uterus is always present, but the degree of atrophy varies from case to case. In some cases the uterus is very small and thin, the length of the cavity in one of the recorded cases being reduced to no more than 4.5 cm. The atrophic process also attacks the cervix, this organ having the appearance characteristic of senile women. In the majority of women suffering from this condition the ovaries are small and atrophic. Of Frommel's 28 cases only 3 had ovaries of normal size.

Menstruation does not always appear after weaning in cases in which this disease develops. It would seem that the development of amenorrhoea depends upon the degree of atrophy which has been attained.

The essential features of Chiari and Frommel's disease are therefore two in number—namely, utero-ovarian atrophy of variable degree, and persistent lactation which also varies in degree as demonstrated by Frommel's case; some women may have amenorrhoea as an additional feature.

Record of a Case of Persistent Lactation

The patient was a married woman 35 years of age. She had one child, aged nearly 16 years. Hospital advice was sought regarding the discharge of blood-stained milk from the left

nipple which had been noticed at intervals during the previous three months. Further inquiry elicited the information that she had lactated continuously since she had weaned her baby—namely, for a period of fifteen years.

Examination revealed mammary glands which were rather voluminous, and it was found that milk could be expressed from each of them with the greatest ease. A few red blood cells were present in the milk first obtained from the left breast. Nothing abnormal could be palpated in the substance of the breast. At the time it was thought that the presence of blood might be due to a duct papilloma or possibly to the rupture of small varicose veins within the breast.

Pelvic examination showed that the uterus was rather smaller than one would expect, firm in consistence, and normal in position. The menstrual losses lasted about four days and occurred at intervals of about a month. The menstrual periods had reappeared about six months after the birth of the baby, and had been constant since that time. Other than the features already mentioned, no evidence of disease of the pituitary gland was discovered.

It was apparent that the patient believed it to be perfectly natural for a woman who had borne a child to lactate for the remainder of her reproductive life, and she did not deny that it was her custom to stimulate the production of milk by expressing it manually every day.

Commentary

This case is of interest in so far as it is one of those rare examples in which lactation persists for many years—in this instance for fifteen years after weaning the baby. It is hardly to be regarded as a case of Chiari and Frommel's disease, as the degree of utero-ovarian atrophy is of a minor nature—certainly not so profound as to cause any menstrual changes. Nevertheless other writers have pointed out that the degree of atrophy varies from case to case, and it is possible that this patient is an example of the mildest variety of genital atrophy associated with prolonged lactation.

It is of especial interest to note that daily manipulation of the breasts had been practised by the patient, and it is possible that this may have been just as influential in prolonging lactation as it is in the case of certain well-known domestic quadrupeds.

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Medical Memoranda

The Blood Supply of Human Heart Valves

Accurate knowledge of normal structure is important in clinical medicine, as anatomical characteristics often throw light on or suggest explanations for some of the mechanical components concerning the localization of disease processes within the body or a tissue. The structure of normal human heart valves, for example, must be properly understood before the histological basis of the pathogenesis of valvulitis can be appreciated.

In view of the importance of such knowledge it is unfortunate that three recent textbooks (Baitsell, 1940; Grant, 1940; Maximow and Bloom, 1939) depict normal human atrio-ventricular valves as containing a richly anastomosing network of blood vessels extending from their bases to the free margin. All quote the authority of Bayne-Jones (1917), and all reproduce the drawing made for him by Max Brödel. It is a semi-diagrammatic figure based on the injection of several specimens and purporting to give a "composite picture of the typical vascular anatomy of a completely injected human mitral or tricuspid valve." The reason for the production of such a composite figure is in itself puzzling, as Bayne-Jones laid no claim to have succeeded in making a complete injection in any valve or cusp.

WORK OF GROSS

The question of the presence or absence of blood vessels in normal human heart valves was for long of a controversial nature, but the final report by Gross (1937), in which he summarizes in admirable fashion the various difficulties that have hindered the true solution of the problem, leaves no doubt as to the non-vascular nature of these structures. Gross's final contribution is of particular significance in view of the fact that he and his collaborators had previously adduced evidence which favoured the belief that blood vessels may exist in a small percentage of normal human heart valves (Gross, 1921; Kugel and Gross, 1926; Ritter, Gross, and Kugel, 1928). Re-examination of their material and of many hundreds of additional specimens, however, led them to express doubt as to the normality of any human heart valve possessing blood vessels (Gross and Friedberg, 1936; Gross and Kugel, 1931). Dow and Harper (1932) reached a similar conclusion.

The presence of blood vessels in heart valves the site of an inflammatory process is undoubted, and it had been shown that they ramify for the most part in the subendothelial zone of the affected cusps. The most probable explanation for their presence is that they have been formed in response to toxic or bacterial injury of the cellular elements of the cusp. The exact nature of the injury is not completely understood, but the work of Gross (1937) clearly indicates that rheumatic fever which had completely regressed clinically is responsible for their formation in many instances. He states: "The supposedly normal vascularized series owes the presence of blood vessels in the valves to a previous mild and in most instances completely healed rheumatic process." Harper (1940) described the reaction of valvular tissue and its relation to the formation of new blood vessels in a case of early rheumatic valvulitis.

DISCUSSION

In the subendothelial zone of normal human valves there are several cell types, many of which under normal circumstances are probably non-motile elements playing an important part in the general metabolism of the cusp. In valvulitis they are activated and produce other cell types. This reaction is primarily one of local defence, but it is also evident that it is secondarily associated with the establishment of new blood vessels within the cusps (Harper, 1940). In the light of these observations it is clear that primary embolism cannot be considered a factor in the genesis of endocarditis in man.

With reference to work on experimental endocarditis it must be emphasized that the significance of the presence or absence of blood vessels in the normal cusps of the animals used has not been sufficiently appreciated. Blood vessels occur normally in the heart valves of certain species—for example, cat, dog, sheep, goat, pig, ox, and horse. These cannot be regarded as analogous to those sometimes occurring in man, which, as explained above, are of inflammatory origin. Rabbit heart valves conform to the human type (Harper, 1938).

These observations have obviously a direct and important bearing on the interpretation of experimental results, and indicate also the care that must be exercised in the comparison of results of experiments on different mammalia. Thus it is essential that statements on details of normal structure should be accurate not only from the purely histological point of view but also from their bearing on the interpretation of disease processes.

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Reviews

MODERN SCIENCE AND THE LEGACY OF
ANCIENT LEARNING

A Short History of Science to the Nineteenth Century. By Charles Singer. (Pp. 400. 8s. 6d. net.) Oxford: The Clarendon Press. 1941.

To inquire why men thought what they did when they did is always an engaging enterprise, and this is the keynote of Dr. Charles Singer's *Short History of Natural Science*. Well known as a most learned authority on the subject, he has in this book so presented the facts as to fascinate anyone interested in the history of ideas. The final exposition of an individual discovery is very different from a description of the steps by which it was reached, but by taking a more extended view of the sequence of ideas, Dr. Singer labels each epoch with its leading motive in a manner which is helpful and impressive.

Thus we start with the emergence of mental coherence in the Greek world when philosophy became based on natural science to the neglect of ethics; then Plato and Aristotle sought to adjust their rival claims, with a preference for ethics, while repudiating the popular religion of the day. This he calls the Great Adventure. Next Alexandrian thought developed separate departments for science, ethics, and religion, and ended with definite scientific deterioration. Intellectual nerve was failing. Under the Roman Empire, the prevalent schools of thought were largely indifferent to science, which deteriorated still further. Scientific inspiration waned to nothing. The vision of the Stoics "was very different from that given by the spacious claim of modern science. . . . It was an iron, nerveless, tyrannical universe . . . in which the Roman thinker must have felt himself fettered, imprisoned, crushed. He had abandoned the faith of his fathers and . . . found himself embracing a machine. . . . It was reaction against this pessimism which led to the great spiritual changes in the midst of which antiquity went up in smoke." And so followed the Dark Age characterized by the Failure of Knowledge just because to the mediaeval mind the world seemed completely knowable in both space and time—and thus not worth knowing. Without curiosity there can be no science, and if the whole scheme of things is regarded as having been revealed once for all, what basis for curiosity remains? Then came the Revival of Learning; seeking to penetrate the dark shadows the humanist tried to discern the antiquity that was beyond. And as he strained his eyes, another vision, a reflection perhaps of himself, came sometimes to him. Then "the vision would be clouded over by that terrible erudition which in the absence of general ideas has been and is one of the enemies of science." Leonardo, Vesalius, and Galileo were more truly the heirs of Plato and Aristotle than were the editors of their texts. For it is living literature, art, and science and not classical scholarship that inherited the legacy of ancient wisdom. That was where the revival of learning failed until the Insurgent Century (that is, the seventeenth) made new attempts at a synthesis aided by the weapon of the experimental method.

The eighteenth century, using the Newtonian key to the mathematics of the heavens, enthroned determinism. And so we are led on to the development of modern science, and the change of thought produced by the doctrine of evolution, in itself a return to the Greek idea that everything is in a state of "becoming." In conclusion Dr. Singer sees the dawn of a stage in which an adequate scientific equipment will involve some regard to the world