

## PAROXYSMAL TACHYCARDIA ASSOCIATED WITH EPILEPSY.\*

BY R. TRAVERS SMITH, M.D., F.R.C.P.I. ;

Visiting Physician to the Richmond, Whitworth, and Hardwicke  
Hospitals, Dublin, &c.

K. M., a healthy-looking, well-developed girl, æt. 14, was brought to the Whitworth Hospital by her sister, on September 26th of this year (1902). She complained only of violent and rapid beating of her heart. On feeling her radial artery the pulse was found frequent beyond counting, small, thready, and compressible. Auscultation of the heart revealed the astonishing rapidity of 248 beats per minute. My resident pupil, Mr. Tighe, independently confirmed this observation at the time. Except for its rapidity, an impulse somewhat diffuse, and rather short, sharp sounds, the heart appeared normal. Nothing was noticed elsewhere other than a distant and somewhat vacuous facial expression. At the girl's own request I allowed her to return home, having first made arrangements for her admission to hospital in the afternoon. On her arrival at home, and after this paroxysm of tachycardia had ceased, though she had some vague recollection of having been brought to a hospital in the morning, she did not remember the details of our interview, and the news imparted to her by her sister that she was to become an inmate of the hospital in the afternoon, caused her surprise and consternation. This circumstance well illustrates the lapses or partial lapses of memory accompanying many of

\* Read before the Section of Medicine of the Royal Academy of Medicine Ireland, on November 21, 1902.

the paroxysms of tachycardia in this patient, of which further evidence was subsequently adduced. The night of her admission she again complained of "an attack of the heart," when Dr. Holden, the house physician, was able to count her heart beats at 260 per minute.

The following personal and family histories were obtained from the patient herself and her relatives. K. M. had always been healthy till a year ago, when, in school one day, she suddenly became weak and her heart beat violently. The next "heart attack," as she called them, did not supervene for three months, from which time they increased in frequency till for some months before admission they occurred every two or three days, sometimes even twice daily. These "heart attacks" would come on absolutely suddenly without apparent cause, last varyingly from five minutes to four hours (commonly one or two hours), then as suddenly vanish. In these attacks she would be conscious of the great rapidity of her heart's action, but would make no further complaint. Her relatives (as well as the patient herself) recognised the impairment of memory which accompanied these paroxysms of tachycardia, and stated that on two or three occasions it amounted to a state of unconsciousness, in which she fell to the ground, but did not convulse. Abundant passage of urine after her paroxysms was noted by the patient. Six months after the first appearance of these cardiac symptoms she began to suffer from seizures, of what I presume to have been minor epilepsy. Without warning she would suddenly lose consciousness for a minute or so, as well as she could judge. During that time she would be absolutely oblivious to her surroundings, stop what she was doing or saying, then recall herself to consciousness with an effort. On these occasions she experienced nothing abnormal in her heart, in fact, looked upon these attacks of giddiness, as she called them, as something entirely different from her "heart attacks." They

never became as frequent as the latter, occurring only once a week approximately.

The opinion that these "heart attacks" were genuine paroxysms of tachycardia was strongly confirmed by the testimony of the patient's step-mother, a trained hospital nurse, who recognised the extreme rapidity of the pulse.

K. M.'s family history is of interest. She is the youngest of eleven children, four boys and seven girls. Her mother died from an unknown cause. Her maternal grandmother, herself healthy, had three sisters, all of whom were healthy, all of whom married, and each had one child. These three children, first cousins of K. M.'s mother, were all epileptics, one of whom became insane. This history indicates a decided neuropathic taint on the maternal side of K. M.'s family.

During the first of the seven weeks' residence in hospital K. M. had several severe paroxysms of tachycardia, and, as well, two seizures of major epilepsy, separated from one another by an interval of three days. These two fits appeared without premonition, the patient becoming unconscious and convulsing in the face and limbs. The convulsions passed off in a few minutes, save for an occasional twitch of the facial muscles, but the patient still remained in a state of coma for nearly an hour in the first, for fifteen minutes in the second. The pulse rate was up to 100 and to 96 respectively in the two fits. On recovery from both drowsiness and marked irritability were observed.

It may be stated at this point that repeated examinations made during the stay of the patient in hospital, except on the occurrence of the two fits or paroxysms of tachycardia, revealed nothing abnormal in the heart or elsewhere save an occasional functional systolic murmur most audible in the pulmonary area. The girl was bright and intelligent, with normal pulse and healthy apparently in every respect. The

menstrual periods were not established. In short, observations made in hospital merely corroborated the patient's own statements.

After the second fit at the end of the first week in hospital potassium bromide was administered in gradually increasing doses with, so far, very pleasing results. The patient has had no further fits of major or minor epilepsy, though it is now just seven weeks since this line of treatment was commenced. The paroxysms of tachycardia have reduced in frequency, more so in duration and severity. For the last two weeks she has had but three paroxysms, each of which was mild and only lasted five minutes.

It is not my intention to enter into the clinical details or the supposed etiology of the interesting symptom, tachycardia. Dr. Finny has dealt with the subject very fully, has recorded three instructive cases, and has compiled a careful bibliography, to be found in Vol. XVII. of our "Transactions." Suffice it to say now that tachycardia in some instances is merely a symptom which may be due to diverse causes. Among these are organic disease of the heart or vessels, exophthalmic goitre, toxic states, and fevers. Such tachycardia has been styled "symptomatic" in contradistinction to the variety in which the rapid action of the heart, usually in paroxysms, appears to be the sole manifestation of any morbid state. This variety has been called "essential," its etiology is still enveloped in a cloud of mystery. Trousseau suggested the phrase "partial epilepsy" and Talamon "cardiac epilepsy" in this connection. The idea, therefore, that some cases of essential paroxysmal tachycardia may be fundamentally similar from a pathological standpoint to epilepsy, is not new. Yet, in the literature of the subject I can find no record of a case (though it is highly probable that such exists) in which paroxysmal tachycardia and epilepsy were as intimately associated

as in that above related. The association may be thus summarised :—

1. The patient inherited predisposition to epilepsy, three of her mother's first cousins, each of separate parentage, suffering from it.

2. The tachycardia commencing in early life, its sudden paroxysmal nature, its mysterious appearance, disappearance, and reappearance ; its tendency to become more frequent and severe, are all suggestive of functional epilepsy.

3. The patient's vacant look in a paroxysma, the impairment of memory, occasionally amounting to unconsciousness, indicate a mild degree of the psychical disturbances of epilepsy.

4. The occurrence of polyuria after a paroxysm of the heart as after epilepsy. (Verified in hospital.)

5. Minor epilepsy showing itself as well as the tachycardia, both occurring frequently, but without apparent order or sequence.

6. The subsequent appearance of major epilepsy in the same patient.

7. The decided improvement (if only for the time being) of the paroxysmal tachycardia on the administration of potassium bromide.

8. Perturbation of the heart's action has been observed as an aura in epilepsy.

In fact it appeared in this particular case, that epileptic "nerve storms" were more prone to sweep in the direction of the heart than in that of the voluntary muscles, but whatever their direction might be, they temporarily devastated, to some degree, the higher physical centres. This theory is not suggested as a serious elucidation of the pathology of the case ; at best it is only somewhat less hypothetical than the explanation which would have been proffered in the Middle Ages, namely, that at times the demon of epilepsy

entered the girl's heart. My experience, however, will prompt me to give potassium bromide a fair trial in the next case of paroxysmal tachycardia that falls to my lot, on the supposition that it may possibly in some instances be a rare manifestation of epilepsy.

NOTE.—Patient has manifested no symptoms of epilepsy or tachycardia for over six months. She continues to take small doses of bromides.—*June, 1903.*