Case Report

Handwriting change as a psychiatric symptom

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ABSTRACT

Graphology is the study and analysis of handwriting especially in relation to human psychology. Many neurological disorders like apraxia and chorea can affect handwriting. Many psychiatric disorders like Depression, Obsessive Compulsive Disorder, schizophrenia are also linked with handwriting change. A unique presentation of major depressive disorder manifesting as chief complain of handwriting change was observed in a girl who had nice handwriting before depression. In spite of constant efforts she was not able to revert back to her original handwriting. Her new handwritings were different from old one in form of width and height of letters, organization and overall presentation. She was prescribed antidepressants. Depressive symptoms were relieved and her handwriting started gradually improving considerably though previous level had not been achieved.

Analysis of handwriting as a tool to understand the emotional state of person can be implicated during psychiatric assessment. The written off science of graphology needs to be made specific and sensitive so that it could provide more accurate results. Further research in this area is warranted.

Key words: *Apaxia, antidepressants, chorea, graphology*

Introduction

Since long, handwriting has been used to identify personalities and emotional states (Graphology) in people. [1] In the act of writing, we make many spontaneous movements. These movements are recorded on paper and reflect our ever-changing emotions. This recorded movement - handwriting - is like an open window through which we can observe the whole vista of a personality. Handwriting like speech is directly connected with our thought process. It is also particularly responsive to emotions such as sadness or enthusiasm. During the process of writing, we transfer our feelings onto paper and the words that we have shaped reflect these emotions. In fact, handwriting is so amazingly sensitive that it can be something of an emotional barometer. Excitement, fear, anxiety, irritability or anger can be seen quite clearly. [2,5] That is why an understanding of handwriting can be so valuable; for example if you write while you are feeling nervous, feeling of anxiety will show up as an almost imperceptible trembling in the strokes of certain letters. It may not be immediately visible at a quick glance (although sometimes it is) but it will in all likelihood show up under a microscope. This is because your handwriting is the written externalization of the vibrant activity going on inside you. It is a type of mental photograph of your inner processes where small quick movements reflect the inner vibration of activity within and round smooth movements show your feeling of relaxation and calm. [3] This is but one aspect; there is so much to handwriting analysis.

Graphology is the study and analysis of handwriting especially in relation to human psychology. In the medical field, it can be used to refer to the study of handwriting as an aid in diagnosis and tracking of diseases of the brain and nervous system.[1] Every literate human has

his or her own manner of writing. There are many peculiarities in a handwritten text's specific shape of letters, e.g. their roundness or sharpness; regular or irregular spacing between letters; the slope of the letters; the rhythmic repetition of the elements or arrhythmia; the pressure to the paper; the average size of letters etc. [3] there is a long list of neurological disorders that affect handwriting, some of them are Congenital apraxia, Strephosymbolia, Cerebral hemorrhage/ trauma, Encephalitis, Paralysis agitans, Toxemia/ alcohol, Huntington's chorea and many more. [7.8.9,10] In various studies many psychiatric disorders are also linked with handwriting change like Depression, Obsessive Compulsive Disorder, schizophrenia and other types of psychosis. [6,11,12,13,14]

Case Report

Patient Miss N, a third year MBBS student presented to psychiatry department with complains of change in her handwriting since 1 year and in spite of constant efforts she was not able to revert back to her original handwriting, the change in handwriting took place in a period of 2 months gradually. Patient became increasingly worried as her grades began to fall due to poor handwriting. Patient consulted 2 different neuro physicians without any improvement; underwent MRI spinal cord and MRI brain (including functional MRI), muscle charting & nerve conduction study of right hand (suspected as thoracic outlet syndrome and as a diagnostic scan) which were normal. Patient's new handwriting (Fig.3) differed from old (Fig.1) in following ways:

- 85% increase in width of letters
- 10% increase in height of letters
- Baseline not followed as before, words were frequently above and below the baseline
- Previously used to write 5 to 6 words in a line but now writes only 3 – 4 words in a line
- Decreased consistency, irregular slanting, decreased organization, decreased connectivity of letters in words with increased angulations.

Fluency, speed and pressure on paper were more or less same.

On detailed interview patient revealed that since 1 year she had conflict in form of breaking up 5 years old love relationship with her boyfriend mutually as he belonged to other religion and they were afraid that their families would not approve of their marriage. Since then patient had complains of:

- decreased participation in previously pleasurable activities like participating in extracurricular activities, travelling and reading
- persistent sadness of mood
- disturbed sleep and appetite
- preoccupation with thoughts regarding the event
- crying spells
- mild anxiety off and on

For further exploration of effect of stressor on handwriting patient was made to write on paper while imagining on different situations; and her handwriting evaluated and results were interesting. On writing a letter to her boyfriend to whom she was intensely emotionally attached the new handwriting (Fig.2) characteristics became much more prominent like: (as compared to original handwriting (Fig.1)

- A 150% increase in width of letters
- 15% increase in height
- Increased deviance from baseline
- Only 2-3 words in a line
- Decreased connectedness of words
- Markedly decreased organization and consistency

On writing a letter to her brother to whom she was moderately emotionally attached the handwriting change became less prominent as was in case of letter to boyfriend but on artificially creating a mental situation in which patient continued her letter imagining that she was telling her brother that she had married against their parent's will the

disturbance in handwriting again became prominent.

On writing a letter to her teacher to whom she had no emotional attachment the newly acquired handwriting (Fig. 2) did not show any further change. Premorbid personality analysis of patient revealed that she was introvert in nature, never used to express anger on others even in extreme conditions, was particularly good in studies, quoted frequently as an ideal example in her family and her cherished childhood memories were focused mainly on academic achievements. There was no history of psychiatric illness in her or in family.

Patient was prescribed antidepressant for her depressed mood. In the course of events after starting antidepressant patient again reconciled with her boyfriend and couple became committed again. Depressive symptoms were relieved following 1 month of antidepressant treatment. At one month follow up patient's handwriting had gradually improved (Fig. 4) but still did not attain previous level though there were no further episodes of worsening of handwriting. Mental status examination was not significant for any psychopathology. Patient took antidepressants for 6 months and did not show any further signs of depression. At six month follow up handwritings were considerably improved though still previous level had not been achieved.

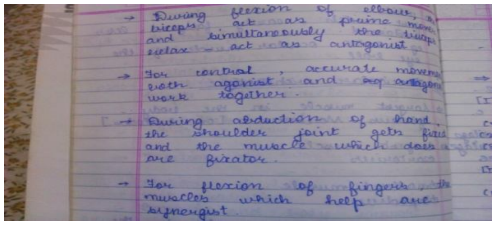

Fig.1 Before illness

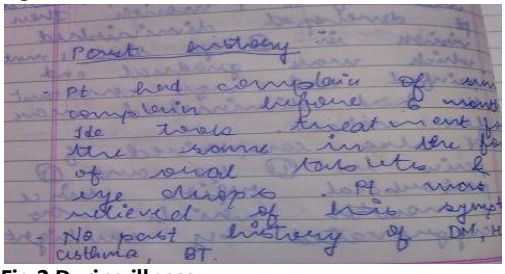

Fig.2 During illness

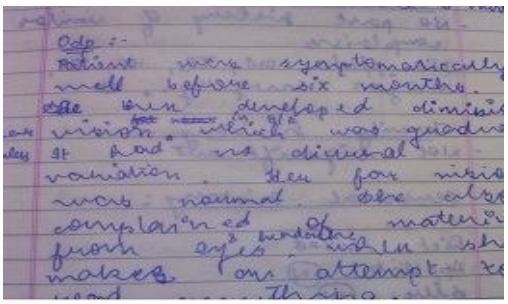

Fig. 3 During illness

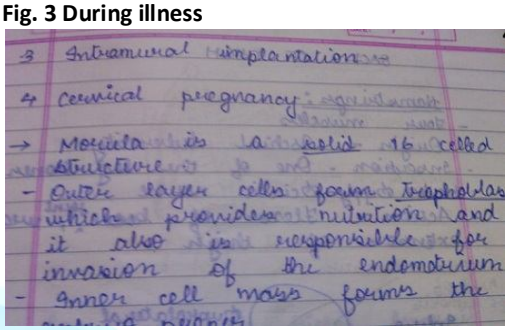

Fig. 4 After treatment

Discussion

Above patient's condition can be discussed under following aspects: A unique presentation of major depressive disorder manifesting as a primary complain of handwriting change. In general due to lack of awareness regarding depressive episode, attribution of it to environmental stressors and masking of symptoms due to good social support patient may present with such complains. Also prominent studies in past as well as present times have documented handwriting change in patient's of depressive illnesses [4,13,14] linking it to basal ganglia dysfunction and or and/or deficient activity of the sensory motor cortex and the supplementary motor area. [13]

Stressor/conflict in psyche manifesting itself as neurological sign in form of handwriting change warranting diagnosis of conversion disorder which is supported by the fact that changes become more prominent as the stressor is aggravated. In educated people (specially with medical background) presentation of conversion symptoms is less likely to be possession episodes, episodes of unexplainable unconsciousness or breathlessness etc, their inner conflict can seek attention by means of such symptom as handwriting change.

Analysis of handwriting as a tool to understand the emotional state of person can be implicated during psychiatric assessment. The written off science of graphology needs to be understood better and made more specific and sensitive so that it could provide more accurate results. Further research in this area is warranted.

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