



## Apathy as a Psychiatric Manifestation of Meningioma

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### ABSTRACT

Psychiatric symptoms can sometimes be the first clinical manifestation of a brain tumor. Symptoms such as behavioral and personality changes or apathy, may be the first manifestation of a tumor located in the frontal region. The case of a woman who after presenting apathy and changes in daily functioning is shown, the radiological image showed as result a meningioma of the olfactory sulcus.

**Keywords:** Apathy; Prefrontal Syndrome; Meningioma; Cerebral Tumors

### INTRODUCTION

Before making any psychiatric diagnosis, the current systems of diagnostic classification and coding of mental disorders, require discarding a medical or toxic etiology of the mentioned symptomatology. Discarding a medical etiology is one of the most difficult and important tasks. Many individuals with medical conditions have psychiatric secondary symptoms to these diseases, in the same way that many individuals with psychiatric illness present medical illnesses. There are many patients in whom, after long periods of psychopharmacological treatment, a latent medical entity is discovered that are difficult or impossible to early diagnose and which shows its face at the least expected time<sup>1</sup>.

Many of the classic neurological symptoms and signs may be minimal or absent in patients with intracranial neoplasms. Even in patients with tumors of considerable size, this symptoms may go unnoticed given the slow growth of the same. Frontal lobe tumors and non-obstructive periventricular tumors may have subtle presentations without neurological focus [1,2].

We must take into account this entity in patients over 40 years of age, who present behavioral alterations that are difficult to explain, or in which there is evidence of cognitive deterioration, affective or psychotic symptoms, as well as personality changes. The presence of physical symptoms such as headache, nausea and vomiting, papilledema, seizures or focal symptoms, helps to guide the diagnosis.

A clinical case is presented in which the patient went to the emergency room for psychiatric clinic, being diagnosed with olfactory groove meningioma.

### CASE REPORT

A 54-year-old woman was referred to the emergency department by her primary care physician for noncompliance with treatment, breakdown of biological rhythms and family overload. As a personal history, he presented: Gastrectomy for gastric carcinoma in 1992; vitamin B12 deficiency not corrected; iron-deficiency anemia without treatment at that time; hysterectomy for angiomyolipoma in 2000 and urinary incontinence for which he was in follow-up due to neurology (pending NMR within 3 months). He had consulted with Psychology a year ago for depressive syndrome, his primary care doctor had prescribed sertraline at a rate of 50mg / day, but after two months of treatment he showed no change and abandoned the treatment. The patient has never been valued by Psychiatry.

When going to the psychiatric emergency department, the family referred to: a year and a half of apathy, an abandoned attitude, social isolation, loss of basic skills such as the required for the development of activities of daily life and to work (patient profession: teacher); for 6 months, investment sleep-wake rhythm; urinary incontinence (11 times in the last 5 months); hypopsmia and symptoms experienced with total indifference on

the part of the patient.

Family reference: "For 3 years it's been strange ... if we went on vacation, I would not leave the room". "We have been eating out for 2 years without caring about the costs ... neither buy nor handle money". "He has personal documents expired for 3 years and he does not care." "It's inconstant with the treatments ... forget vitamin B12 and take sertraline at any time of day, the day you remember"

We conducted a semi-structured and mini-folestein interview (the result was 23/30).

In the psychopathological exploration she was conscious and oriented in the three spheres, collaborative, approachable. Logical speech, monosyllabic, not spontaneous, slow but preserved. Bradipsiquia. Hipomimic facies. Psychomotor inhibition. Good contact, no perplexity. Apathy, apathy, anergy, indifferent and abandoned attitude, social rejection. Hyporexia with weight reduction, inversion sleep-wake cycle. No ideas of death. No active psychotic symptomatology. No anxiety, no irritability. No behavioral alterations or self or heteroaggressive. No mnemonic deficits. Anosognosia Diminished photomotor reflex. No nystagmus. Cranial nerve function preserved. No dysmetria. No disdiacokinesia. Strength and sensitivity preserved. No meningeal signs. Given this examination, the patient was admitted to the psychiatric hospitalization unit to study the pseudo-depressive syndrome under study.

Impressive of absence of feeling of illness, lack of introspection, passivity before the current situation, being the predominant symptom apathy. As a diagnostic suspicion, a fronto-temporal process was posed, either due to degenerative disease (Fronto-Temporal Dementia), secondary to metabolic deficit (folate deficit or hypothyroidism) or to tumor process.

Complementary tests requested: complete analysis, cranial CT and cranial MRI. The result of the cranial MRI (the magnetic resonance image brain in coronal and axial sections, in sequence (T1 and T2 flair) showed solid extra-axial tumor of 7x5 cm in diameter, of frontal interhemispheric location, compatible with meningioma of the olfactory sulcus that produced a mass effect on the anterior horns, the lateral ventricles and the diencephalon. ACAs displaced anteriorly with pericallose infiltration. Chiasma displaced towards inferior (Figure 1 and 2).

After the radiological finding, the patient was diagnosed with prefrontal syndrome secondary to meningioma of the olfactory sulcus (F06). The patient was referred to Neurosurgery for intervention.

### DISCUSSION

#### Apathy

What this case shows us is the importance that psychiatric symptoms can have as part of the diagnosis of tumors. In this case, the predominant symptom was "apathy", which we defined as: dull emotional tone associated with disinterest or indifference.

Synonyms may be abulia (more severe), amotivational states and negative symptoms. We can consider it as a symptom or as a syndrome that involves changes in mood, behavior and cognition, not due to mood disorders, altered consciousness or cognitive damage [3]. It can appear in: demential pictures (being more frequent in Alzheimer's disease); traumatic brain injuries; alteration of frontal subcortical limbic circuits and focal frontal lesions. The frequency with which these focal frontal lesions usually appear are: medial location 12'5%, lateral 62'5%, bilateral ventromedial 71'4% and 21'4% without medial lesion. Apathy in these patients with frontal lesions is more prevalent than in subjects diagnosed with depression or bipolar affective disorder. Apathy can appear as symptoms of a degenerative process such as dementia, within the depressive syndrome, as part of the evolution of a personality disorder, psychosis and of course, the frontal syndrome.

We tend to talk about apathy within depression, however we can separate both. If depression is associated with apathy, both should be expressed together in different demential syndromes and concur according to the severity levels of the disease. However, this does not happen like that. The appearance of one or the other is related to the anatomical region affected in each situation (which can be seen in the demential syndromes) [4] (Table 1).

Table 1. Differences between apathy and depression

APATHY	DEPRESSION
Decreased motivation not attributable to decreased level of knowledge, cognitive impairment, or emotional disturbance.	Considerable emotional disturbance, evidenced by tearful, sadness, anxiety, agitation, insomnia, anorexia, feelings of worthlessness and despair, and recurrent thoughts of death.
Enf. Alzheimer's	Parkinson's Disease
Frontotemporal dementia	Huntington's Disease
Progressive supranuclear palsy	

Table2. Front Functions and Executive Function

FRONT FUNCTIONS:	EXECUTIVE FUNCTIONS: (settled in prefrontal areas, dorsolateral)
Voluntary movement.	Focused attention on relevant stimuli.
Expressive language or speech and motor prosody.	Proper response flexibility.
Cognitive processes necessary for calculation, attention and memory, "behavior".	Task planning.
Motivation and some unconscious. Inclination that can guide behavior. Intuition.	Forecasting and execution, working memory.
	Organization of behavior temporarily.
	Curiosity-motivation.
	Formulation of abstract concepts.
	Self-consciousness, moral conduct, social discourse.

## Front Syndrome

In the case we present, apathy was part of the frontal syndrome, which we defined as the set of alterations due to a frontal lesion, involving the prefrontal area, and its consequences on the motor cortex, premotor and related areas. Its etiology may be due to injury, strokes, frontal tumors such as meningiomas or gliomas, fronto-temporal dementia, Huntington's disease, progressive supranuclear palsy, neurosyphilis, multiple sclerosis or prefrontal leukotomy. The manifestations of this syndrome, according to the prevalence of one location and another, is shown in Table 3.

Table3. Clinical manifestation according to the affected frontal region.

	DORSOLATERAL	ORBITOFRONTAL	PREVIOUS CYNGULATE
MAIN CHARACTERISTICS	Cognitive disorders "disorganized"	Personality disorder "Uninhibited"	Loss of spontaneity, initiative, "apathetic"
MAIN MANIFESTATION	Executive functions: planning and flexibility	Acquired sociopathy	Passivity
OTHERS	Perseverance, stimulus-directed behavior, verbal fluency, motor programming, problem solving, demotivation.	Moria, inappropriate affection, impaired judgment, distractibility, anosmia	Language disorder, akinetic mutism, motor alterations, "go, no-go" phenomena, incontinence.

## Psychiatric Disorders of The Cerebral

Brain tumors can produce psychiatric symptoms in different stages. The neuropsychiatric manifestations can be, in some occasions, the only manifestation of a brain tumor. The nature of the symptoms depends not only on the location of the tumor, but also on the presence or increase of intracranial pressure, or on the rate of tumor growth, so that slow-growing tumors are more prone to cognitive deficits.

### Symptomatology According To the Location

- **Frontal Lobe:** pseudo-psychopathic, pseudo-depressive states. Frontal lobe. The characteristic crises of the posterior frontal region are the oculocefalogiras and adverse crises secondary to commitment of the precentral region. When there is a compromise of the frontal frontal lobe, characteristic psychological alterations of the frontal lesion are presented as depression, although not frequent or excitation where euphoria is found, irritability. Gait disturbances (ataxia) and alterations in diadochokinesia are also found. When we refer to organic personality disorders we describe the orbitofrontal syndrome, the frontal convexity syndrome and the fronto-medial syndrome. This classification is more than real since frontal tumors usually present mixed pictures due to the direct and indirect affection of several frontal regions. Table 3.

- **Temporal Lobe:** episodic abrupt mood swings, autolytic ideation and intent, visual, olfactory, tactile and auditory hallucinations. Episodes of "reverie" or feelings of dazzlement. Affectivity preserved (no negative symptoms). Personality changes in 50%. There are frequent epileptic seizures of uncinata type in which unpleasant odors are perceived, persistent obsessions. It is also associated with alterations in memory and emotional lability, language disorders, type receptive aphasia. Temporal lobe epilepsy with its neuropsychiatric manifestations is common. The presence of panic attacks, of visual, tactile, olfactory, gustatory, pleasure and orgasmic hallucinations can appear prior to the convulsive phenomenon as a simple partial crisis. The ictal experiences of forced thinking, "d  ja vu" and depersonalization can confuse the diagnosis along with depression, anxiety, irritability and the discontrol of aggression. When the tumor is left, the deterioration of the superior mental functions is frequent.

- **Parietal lobe:** sensory and motor abnormalities, danger of being diagnosed with conversion disorders or somatization. Because of the proximity to the motor area, hemiparesis against flaccid and then spastic laterals is the most frequent manifestation, followed by sensory alterations, praxic and language disorders. Alteration of motor coordination manifested with fine movements such as writing and sewing. When the tumor is in the dominant hemisphere, dysphase or apraxic conditions may erroneously suggest dementia. In the non-dominant hemisphere, somatoagnosia and anosognosia may suggest a hysteriform picture. The parietal lesions alter the mood frequently producing depression.

- **Diencefalic tumors:** schizophreniform manifestations in third ventricle; hypothalamic disorders such as hyperphagia, eating disorders or sleep disturbances; also, alterations in learning. The symptoms may resemble those caused by tumors located in the Frontal Lobe due to the interruption of the temporo-limbic-frontal connections. Alterations of memory and confabulation are frequent, indistinguishable from a Korsacoff syndrome. Intracranial hypertension leads to a picture of dementia with secondary cortical atrophy. Hypersomnia and other symptoms of hypothalamic involvement suggesting localization.

- **Pituitary tumors:** Diencephalic, frontal or temporal extension can produce cognitive, convulsive and endocranial hypertension alterations. A neuroendocrine syndrome can also occur with hypothyroidism or Cushing's syndrome.

- **Occipital Lobe:** nonspecific symptoms. Uncommon, its main symptom is occipital pain with irradiation to the cervical region and compromises of the motor and sensitive tract. Cognitive disorders are related to endocranial hypertension in occipital lobe [5,6].

### Symptomatology According To the Involvement of Lateralization

- **Left Hemisphere:** akinesia and depression. Left focalization in frontal lobe, produces a greater degree of cognitive and

depressive alterations.

- **Right Hemisphere:** psychosis, serious underestimation of the picture, Capgras syndrome, mania. Right injuries in frontal lobe frequently present affective exaltation.

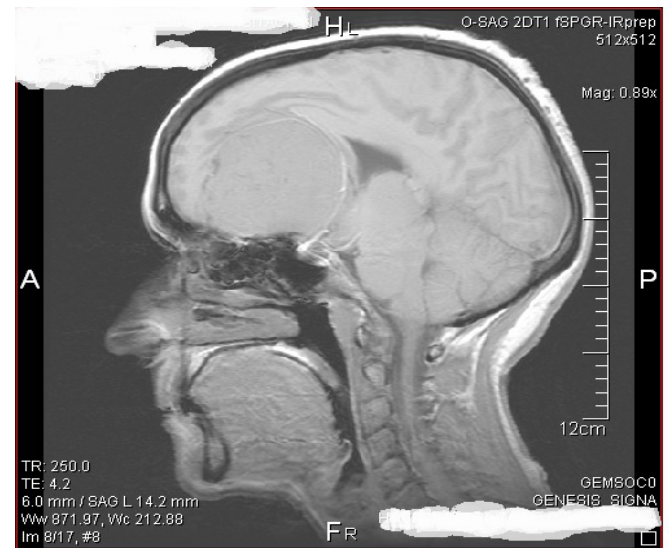
Depression and anxiety are symptoms more typical of the lateral than medial region. Affection of the lateral region causes a decrease in emotion and motivation / apathy [7].

**Meningiomas:** 21% of patients with incipient meningiomas have psychiatric symptoms such as anxiety, depression and personality changes in the absence of neurological symptoms [8].

**Below are other clinical cases that represent the following:**

A 62-year-old woman with headache, insomnia, depressive syndrome diagnosed several years earlier, who progressed with gait alterations. Possible Parkinson's disease was suspected, left hemiparesis developed and the diagnosis by imaging objective was meningioma.

75-year-old woman with impaired memory, urinary incontinence, headache. He had been in treatment for Alzheimer type dementia for 10 years, 2 years with gait alterations and a vertebrobasilar study without alterations. After presenting paresis in legs, developed obstructive hidrorcephaly, being diagnosed with meningioma.



A 71-year-old woman with headache, dizziness, memory alterations and disorientation and paresis in the left leg. For 6 months with a history of anxiety, fear, increased irritability and sensitivity. On examination it showed positive Babinski and horizontal nystagmus. Finally, diagnosed with meningioma [9].

## CONCLUSIONES

1. It is necessary to perform a thorough physical, neurological and mental examination in all patients with psychiatric symptoms, since between 1-2% of these patients may have a brain tumor and not be diagnosed correctly. These findings are important in the field of neurosciences, since psychiatric symptoms can be the manifestation of space-occupying pathologies.

2. The most outstanding clinical aspects of tumors of the Central Nervous System are based on the progressive appearance of focal neurological signs and symptoms, as well as neuropsychiatric symptoms, personality changes, affective modifications and neuropsychological deficits.

3. These signs and symptoms do not always appear quickly because of the presence of the tumor, and are not present until very late in "silent" tumors, such as meningiomas.

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