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Chapter 6
PATHOLOGY OF PERCEPTION

Perception is a complex system of processes for receiving and transforming information which gives a possibility to the body to fulfil the function of reflection of objective reality and orientation in the visual environment. Perception together with sensation, synthesises the starting point of the process of cognition, giving a body the suitable sensory material; perception is somehow mediated by the process of activity of thinking and is verified by practice.

The mechanism of perception depends on correct functioning of receptors (sense organs) and analysers (central organs) consisting of a number of transformers (ganglia), through which energy being received from the external world is transformed into a substrate for mental function of perception; this mechanism also depends on the current state of consciousness and attention as well as on social experience. Dysfunctions of central perception mechanisms are of particular importance, especially if no complete loss of functions, but only pathological changes leading to a distortion of the sensory experience and to so-called deception of the senses, which are the main mental insanity associated with disorders in the area of perception.

HALLUCINATIONS

The scientific understanding and definition of hallucinations has developed in the process of the historical development of this psychiatry problem study. The original, common meaning of the word "alucinatio" translated from Latin corresponds to such concepts as "senseless chatter", "pipe dreams", and "empty ravings". In the Renaissance in France, J. Fernell used the term "hallucinations" in the section "Pathology" of his treatise "Universal Medicine" (1554), where eye diseases were described. He explained: Greek called hallucination with the term "*parorhasis*"; it means "visual impairment". According to J. Fernell, for a hallucination, there is the morbid lemon-yellow colouration of the cornea, or it becomes red and inflamed. It is obvious that a common, utilitarian understanding of the word "hallucinations" gradually starts to have a scientific meaning,

designating a morbid disorder. Later, the Swiss physician F. Platter (1625) wrote about hallucinations: "Insanity, or hallucination, also called "*paraphrosine*" by the Greeks, lies in the fact that people imagine things that are not there, or of things that are present, reunite perverted judgments and remember everything poorly in common or some particular subject; the foregoing disorders are found in their thoughts, speech, or in action". It implies from here that the author identified the term and concept of "hallucination" and the concept "insanity in general". Also, in the Renaissance, P. Zacchias (1624), in his book "Legal Medicine Problems", individualising the class "Melancholia", enumerates the following varieties: "hypochondriac melancholia with partial delirium", "hypochondria without delirium", "hallucinations without delirium". Here, at the first time, the concept of "hallucination" is separated from delirium as an independent phenomenon.

Later, different researchers gave many different definitions of hallucinations, e.g. C. Linnaeus (1763) in his book "Genera of Disease" divided these phenomena into auditory which he designated in Greek "*syringmos*", and visual ones designated as "*phantasma*"; he did not use the term "hallucination" itself.

Finally, Jean-Étienne Dominique Esquirol, in his "Guide on Psychiatry" (1838), finally formulates the scientific concept of "hallucination". He writes as follows: "A person who has a deep conviction about their current perception (sensation), though no external object within reach of their senses, is in a state of hallucination; they are a visionary" (from the French word *visionnair* — "dreamer"). This definition is a full correspondence between the signifier and the significative; moreover, it includes a personality factor of the hallucinant; this gives a systemic understanding of this clinical of the phenomenon, in case of which there are both disorders in the sphere of perception and persistent belief in erroneous judgment.

If we briefly summarise the definition of hallucinations, **a hallucination** is a **perception without an object** (B. Ball, 1881), **or imaginary** perception**.**

It can also say that **a hallucination is a perception of a currently non-existent real object in front of a hallucinating person**.

Historically, there is a division of hallucinations by sense organs which they correspond to. In first work of J. Baillarger (1846) already, devoted to this problem, hallucinations are divided into auditory, visual, gustatory, olfactory, haptic (tactile), in other words, hallucinations of the cutaneous sense, hallucinations of muscular sense, and also visceral ones, which are characterised by imaginary sensations in viscera.

Visual hallucinations may be simple — visions of light, sparks, light and colour sensations that do not correspond to external stimuli and which do not have a definite form (flashes, coloured spots). Such disorders are referred

to be **photopsia**, they are found more often in case of organic pathology, e.g. accompany the aura in patients with epilepsy.

In the case of typical visual hallucinations, a patient sees certain figures, faces, or real scenes. These can be various animals, insects, people known or unknown. Such visions are sometimes static, immobile, but they can be moving as well. Sometimes hallucinatory images can inflict fear. Their sizes are very different, but they can be very small (microscopic) or, on the contrary, very big (macroscopic).

Brilliance and unusualness of hallucinatory experiences are reflected in fiction. This is how Edgar Poe describes a visual hallucination in his poem "The Raven":

Open here I flung the shutter, when, with many a flirt and flutter,
In there stepped a stately Raven of the saintly days of yore;
Not the least obeisance made he; not a minute stopped or stayed he;
But, with mien of lord or lady, perched above my chamber door—
Perched, and sat, and nothing more...
This I sat engaged in guessing, but no syllable expressing
To the fowl whose fiery eyes now burned into my bosom's core...

For **auditory hallucinations**, patients perceive non-existent sounds. Sometimes they are elementary: noises, whistles, buzz, gnash, knock, crash, and ringing. Such hallucinations are defined as **acoasms**. Sometimes they are more complex such as orchestral music. In other cases, these are separate sounds (phonemes), calls, words or whole phrases uttered by people known and unknown. "Voices" can come from different parts of the room: from under the floor, from the walls, from the ceiling, and near or far distances. Such "voices" can be quiet, loud, angry, pleading, or ordering (imperative). Auditory hallucinations in the form of "voices" are called **verbal**.

Patients can hear shouts, swearing, threats, and long dialogues. At the same time, in certain cases some "voices" are against patients, the others, on the contrary, defend them (antagonistic, or Manichaean, hallucinations). "Voices" are real; they are heard to be clear and distinct; the latter makes patients respond to them with appropriate deeds, actions, and answers. If these "voices" are unpleasant, some patients close their ears; if the "voices" are pleasant, interesting, patients freeze and listen to them attentively, and smile.

In the case of **olfactory** hallucinations, patients feel different smells that do not exist at the moment: burning, soot, gas, carrion, offal, and faeces. Less common there are sensations of pleasant smells: the fragrance of flowers and forest grasses.

For the onset of **gustatory** hallucinations, patients speak about pleasant or, on the contrary, sharp, disgusting tastes in their mouth. Unpleasant olfactory,

in other words, gustatory hallucinations often cause patients to refuse food; the latter objectively indicates the presence of a similar pathology.

With **tangible (tactile)** or **skin** hallucinations (they are also called hallucinations of the sixth sense), patients experience crawling of insects, parasites on the body or under their skin, passing of some electric discharges through their skin, the sensation of tingling, tickling. W. Magnan (1897) paid his attention to cocainists to often have a feeling of "giving one the creeps" under their skin. V.A. Gilyarovsky (1949) was describing a cocaine patient who had severe itch all over her body. She was convinced that lice were accumulating there. The patient regularly scratched herself, and she also demanded the physicians to cut her skin to remove these insects.

Sensations of someone's hand touching to their body are referred to **haptic** hallucinations.

Visceral (interoceptive) hallucinations are characterised by the sensation of a clear presence of foreign objects, living creatures in the body, usually in their abdomen, they are sometimes immobile, but often are in motion.

Olfactory, gustatory, dermal and muscular, sixth sense hallucinations are sometimes hard distinguished from illusory perceptions, since it is not always possible to exclude the presence of any real stimulus in these sensitivity areas in the form of a light smell, taste and paresthesias that are incorrectly perceived by patients.

All the described hallucinations show that patients consider them to be objects and phenomena of reality; for patients, they are the objective reality. Hallucinating patients see, hear, and smell, feel something that is not there. This is what one of the patients of W. Griesinger says about it. "I hear voices because I hear them; I don't know how it happens, but they are as clear to me as your voice; if I should believe in the reality of your words, let me believe in the reality of the words that I hear; both these and those are equally perceptible for me" (W. Griesinger, 1845). Such hallucinations convincingly being realised as the objective reality of perception, are called to be **true** hallucinations.

The "voices" are sometimes heard not from other people, not from above or below (this is also true for visions), but from nowhere. This does not prevent them from remaining hallucinations in the proper sense. However, there can be such cases when visual images of a hallucinatory nature are located somewhere behind the patients, beyond their field of vision. One patient of V.A. Gilyarovsky saw two special light stripes behind her eyes, somewhere inside her head. E. Bleuler (1903) named such experiences as **extracampine** hallucinations (means beyond the field of vision).

Also, some visual hallucinations can occur either only during falling asleep (**hypnagogic** hallucinations) or only during awakening (**hypnopompic** hallucinations).

Besides the hallucinations described above, there are also rarer types, such as **hygric** ones (with the sensation of moisture on the surface of their body), **temperature** hallucinations (patients feel a temperature change with the feeling of cold or heat on the surface of their body).

K. Kahlbaum (1874) introduced the concept of "**functional hallucinations**" about true auditory deceptions, which are characterised to begin in the presence of real external sound stimuli. In this case, "voices" appear when patients, e.g. hear the sound of pouring water, wind howling out of the window, the rumble of a running motor. After ceasing of such rumble or noise, true auditory hallucinations stop too.

K. Kahlbaum (1874) also suggested distinguishing **reflex hallucinations**. They begin in the sphere of one analyser as a real stimulus is acting to another analyser. An example is visual hallucinations that occur in response to the sound of a tuning fork, or unusual sensations in the viscera for performing actions that do not have a direct influence on the functioning of heart, stomach, bowel, etc. As an example, E. Bleuler (1916) described a patient, who in response to the sound of a key turned in a keyhole, had a feeling of a similar key movement turning in his heart. W. Mayer-Gross (1957) gave another similar example when his patient in a state of mescaline intoxication said that the sounds of the harmonica made him feel that loud-sounding worms were passing through him.

True hallucinations can be simple if they are limited to the area of a single analyser, one sense organ, or complex ones when they extend to several sense organs. Usually, hallucinations are not isolated psychopathological phenomena; they often show only one of the manifestations of the psychosis. Visual hallucinations, in particular, usually occur during the clouding of consciousness (delirium tremens in patients with alcoholism); auditory hallucinations are more often found if consciousness is clear and can be accompanied by delusions (hallucinatory delusions).

For brilliant hallucinations, there is no need to ask patients with delirium tremens what they see, since hallucinations affect the entire behaviour of such patients and can be determined by what they say, by their speech, answers imaginary questions, their facial expressions, or this or that deeds. A well-known practical method in such cases is the offer to "talk by phone"; the patient can be given a foreign object or a receiver disconnected. After that, the patient immediately begins to talk lively.

Visual hallucinations for delirious states tend to intensify with applied pressure on the eyeballs (Lipman's method, Lipman's symptom). In such cases, hallucinations can be sometimes suggested the patient by asking what they see at the top, on the left, on the right of a blank sheet of paper.

The descriptions of deception of the senses made by physicians who themselves had suffered these mental disorders are of special interest. One of such descriptions was made by a talented psychiatrist V.Kh. Kandinsky (1880) who had the misfortune to suffer a mental disorder. He reflected all the phenomena which he had experienced in his special work.

"Having suffered for about two years from a mental disorder, I felt the most abundant and most diverse hallucinations in all spheres of my perception, perhaps, except the taste. However, my olfactory hallucinations were relatively rare, and they were difficult to separate from the real impressions because my organ of smell was hyperesthesized extremely. In the same way, I will leave aside the hallucinations of hearing because in some cases it is difficult to separate them from my real perception: In mental hospitals, a patient can hear so many sounds coming from everywhere — voices and speeches of various kinds — and it is often difficult to decide what belongs to the visual environment and what does to the patient. My hallucinations of vision and touch, in other words, the sixth sense, were most frequent and diverse. To the latter, I refer numerous sensations of touching, pressing, throat suffocation and especially pronounced hallucinations regarding equilibrium of my body and its position in space such as: spinning of the surrounding objects around the axis of my body and my line of vision, their movement either in one or in different, but always certain directions, the floor moving forward from under the feet, runaway of walls (sometimes it happened that the part of the wall corresponding to my right eye, were splitting down, while the part of the wall corresponding to my left eye went down; with such a movement of the objects to opposite directions, a very painful sensation of tearing of my brain was caused), the walls moving apart, and then the sense of fast-rolling down along an inclined plane (like at skating-rinks), turning over with my bed, spinning, swinging in the air, lifting up, and, finally, quite a lively sense of flying in the space... Some of my visual hallucinations were relatively pale and unclear like a shortsighted person sees the objects which their eye cannot see clearly. The other objects were as bright and complex as well as shined in colours as real objects. Bright hallucinatory pictures of vision almost covered real objects. For a week, I was looking at the wall covered with one-colour wallpapers and there saw big paintings al fresco circled with precious golden frames, paintings depicting landscapes, sea views, sometimes portraits, for all that, the paints were as lively as in the paintings of great Italian artists. Another time, for my bedtime routine, I suddenly saw a statuette of average size made of white marble, something like Venus in front of me; in a few seconds, the statuette's head fell off, leaving a smooth neck stump with bright red muscles; having fell and split in the middle, with the brain falling out and blood pouring out; the contrast of the white marble and the red blood was especially sharp. My hallucinations were both with my open and closed eyes. In the first case, they were projected onto the

plane of the floor, ceiling, or walls, or simply appeared in the space in front of the objects behind them. In some cases, the visual reality disappear, being replaced with a new one for a few instants; e.g., instead of a room, I got on the shore of a bay, on the opposite shore of which, there was a chain of mountains; this landscape was appeared to be bodily one, but not in a form of a picture painted with oil paints, as in other cases. When my eyes were closed, complex hallucinations mostly occurred in a form of bodily objects surrounding me; less complex hallucinations, such as pictures, microscope preparations, ornamental figures, were drawn against the dark background. Over time, hallucinations of vision had become so casual that they did not excite any agitation or painful sense, but rather served as a mean of time passing. There is always very much time between hallucinations and images of memories and fantasy. The most essential feature of hallucinations is not their liveliness (some of them can be pale), but their reality (objectivity) being felt while images of memory and imagination are associated with the brain activity being felt and always remain subjective. Some artists and poets have an extremely powerful and lively fantasy, but they do not hallucinate; on the other hand, a person with very poor imagination can experience hallucinations."

The so-called **pseudo-hallucinations of V.Kh. Kandinsky** (1890) are special, different from the **true** hallucinations considered already. Similar disorders had been previously described by J. Baillarger (1846) and had been designated as "mental hallucinations".

Pseudohallucinations did not have indicators of objective reality and definiteness. In case of auditory pseudohallucinations, they are distinguished by the absence of everything that characterises a real voice: They are often mute, as patients say, somewhat spiritless; the latter sharply distinguishes them from ordinary human speech and sounds of the real human voice. These are some internal voices that do not belong to someone from the outside but are heard inside the patient, in their head, in their chest. Visual images are similarly incorporeal, without any flesh and blood. Patients tell about mental visions, mental "voices", and opinions. V.Kh. Kandinsky gives several brilliant examples of pseudohallucinations. Here is one of them.

His distant relative, a boy of 12, A.M., one evening, after his prayer, which is ended with the words: "May be not this bed my coffin", lay on his bed down and shut his eyes preparing to sleep.

Suddenly, quite unexpectedly, he felt that someone was standing in front of his bed. Frightened, he opened his eyes, but saw no one physically in the room, dimly lit with a night-light, but with his internal vision, he saw both with his eyes open and with his eyes closed (sharper if his eyes are closed), two steps away from the bed, a grey-haired old man wearing a black cassock was standing in front of the bed with his arms crossed across his chest. That night, A.M. fell asleep spiritually exhausted,

only at dawn, he could not get rid of that image although he saw nothing with his external eyes. Waking up the next morning, A.M. felt that the old man, being still invisible physically was still here and remained in the same posture. "This is the Venerable Macarius," A.M. decided and thought: "This phenomenon means that I will die soon." For two weeks, A.M. could not get rid of the image of the old man that nearly drove him mad. Fearing of mockeries, A.M. did not tell anyone about this, but he suffered very much, especially at the day, since the presence in his mind of the same forcible intruder, which was a firmly stuck visual image, was inhibiting the mental activity of the boy. Looking at the place where Father Makarius stood, A.M. saw nothing but real objects, but, at the same time, he felt the presence of that pseudo-hallucinatory phantom with his inner, indestructible sensation; the image of the old man was constantly kept in his inner vision.

Under the description given by V.Kh. Kandinsky, a characteristic feature of pseudohallucinations is evident: forcible nature of their invasion to consciousness, their onset against a patient's will, a sensation of constant outsider presence, and obsessive nature of the disorder. V.Kh. Kandinsky considered the name "pseudohallucination" to be not quite exact. It would be more correct, in his opinion, to speak in such cases of incomplete hallucinations, or hallucinoids. According to K.I. Noishevsky (1906), the main difference between true hallucinations and pseudohallucinations is you to be able to turn away from a hallucinatory image while you cannot turn away from the pseudo-hallucinatory image; it follows eye and head movements. Many psychiatrists consider this symptom to be differentially diagnostic. Visual pseudo-hallucinations, as patients themselves say, are seen with their inner vision, with eyes turned inward, that is why there is often no projection to the outside world, but this is not always the case.

Describing hallucinoids, patients note their onset against their own will and desire. The obsessive nature of pseudohallucinations according to V.Kh. Kandinsky is a peculiar feature to auditory deceptions. Often, patients have intensive conversations with pseudohallucinatory "voices", they mentally ask different questions and get responses from them; in other cases, on the contrary, the questions are asked by the "voices" themselves. In several cases, the repetition of patients' thoughts is noted. This phenomenon was described by G. Clérambault (1925, 1927) who called it "echo of one's thoughts". Thoughts can be prompted to some patients at the same time; there can be complaints about the sound of the thoughts, double thinking, forcible thinking. A phenomenon of forcible speaking is also known when it seems to patients that their tongue is moved by someone, that they are made speak with their tongue. J. Seglas, which described forcible speaking, designated this disorder by the term "verbal motor hallucinations" (1888). Some patients are under the influence of silent "voices" and perceive mental "voices".

V.Kh. Kandinsky summarising observational data wrote about three kinds of subjective sensory perceptions: ordinary images, reminiscences and fantasies; pseudohallucinations; hallucinations. At the same time, pseudohallucinations are characterised as phenomena in which, due to "subjective stimulation of the known sensory brain areas of the brain, certain images are very lively and sensual to an extreme degree; these images however differ sharply for the perceiving consciousness from really hallucinatory images in the fact that the latter have an inherent nature of the objective reality, are recognised as something subjective and, at the same time, as something anomalous, new, very different from ordinary images, reminiscences and fantasies." (V.Kh. Kandinsky, 1890).

Pseudo-hallucinations of smell, taste, tactile, visceral ones, in contradistinction to similar true hallucinations, are accompanied by a sense of artificiality and involuntariness. Patients experiencing them complain about disgusting odours, the nasty taste of food, insects are infused; foreign bodies are formed in their abdominal cavity and their chest, etc., by influence from within.

ILLUSIONS

J. Esquirol (1838) defined illusions, in contradistinction to hallucinations, as a distorted, wrong and false perception of objects of the surrounding reality. Causes of perceptual distortions do not always lie in the painful properties of a perceiver; they can also be special properties of the environment as well as in physiological specialities of a human body being in certain cases expected for everyone. Like hallucinations, illusions differ in sense organs in which they are found. Under the conditions of their onset, they are divided into physical, physiological, and mental ones (J. Sally, 1881). As a literature illustration of various illusions, fragments the ballad "Erlking" by J.W. Goethe can be cited:

Who rides so late through darkness and wind?
It is a father with his child.
He holds the boy tightly in his arms;
To keep him warm in the cold of the night.
"My son, why do you hide your face in fear?"
"Father, can't you see the Erlking?
There he is, all gowned and crowned".
"My son, it's only fog from the ground".
"Dear little child, come away with me.
Our games together — what game's they'll be!
I've got gorgeous gardens with colourful flowers.
My mother will cloak you in gold galore".
"Oh, father! My father: oh can you not hear

The promise the Erlking breathes in my ear?"
"Oh no, my son, take it easy there.
It's withered leaves in the windy air..."

Physical illusions are those which conditions of onset are in the physical properties of the environment (e.g., mirages caused by reflection in air medium of objects and areas located at a far distance; a stick partly immersed in water appears to be bent at the water surface because water has higher refractive index than air, etc.).

Physiological illusions include the perception caused by various inappropriate irritators of peripheral apparatuses of sense organs, responding to these irritations in a specific way. These include, e.g., light phenomena that develop when eyes are closed, especially after pressing onto the eyeballs, "seeing stars" in eyes, light effects when optic nerves are stimulated by electric current, or inflammation. Such illusory perception is typical for both healthy people and patients with mental diseases. According to A. Pick, a source of illusory phenomena in the people with a mental health condition can be an entoptic perception of their blood circulation, which develops under certain pathological conditions. Physiological illusions include numerous examples of the so-called **Müller-Lyer visual illusions**.

These are geometrical-optical illusions based on the fact that comparative assessment of size and ratio of identical figures requires a different amount of muscular work, since the figures and lines compared have some extraneous elements, which we cannot ignore, and thereby we arrive to the wrong, illusory conclusions. This is proven with the well-known drawing with various additions that create the illusion of the different length of the equal segments.

Müller-Lyer Illusion

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Mental (pathological) illusions are of psychological origin; their causes are disruption of the activity of attention, memory, hedonic tone, and distinctness of the associative process.

Mental illusions of people with a mental health condition are of the special pathological nature. Such illusions are divided into affective, verbal and pareidolia, for convenience.

- **Affective** illusions manifest against a background of fear or anxiety-depressed mood. In such a state, e.g., hanging heavy curtains is perceived as some frightening images of hidden enemies, a stump of the tree is mistaken for a thief, fog can have an appearance of a saint's face (E. Bleuler, 1920).
- **Verbal** illusions consist in the fact that the content of a real talking of other people is misunderstood. In comments, questions and tips on off-topic, the patient hears reproaches aimed at them, imaginary reproaches,

and mockeries. When there is fear, they speak of affective verbal illusions in such cases.

- **Pareidolia** (name suggested by K. Jaspers in 1913) is a special illusion phenomenon when patients with a lively imagination perceive real images, e.g., stains on a wall, or carpet patterns, are perceived in an illusionary way and thanks to their fantasy, they are complemented with non-existing details: They see wild beasts, birds, various landscapes with mountains, rivers, valleys, pictures of battles, etc.

Phenomena of this kind were described in creative people. It is quite natural that can often be found in artists and in general in individuals with a strong visual imagination.

Psychosensory Disorders and Disorders of Body Image

This type of pathology is also referred to as disturbance of perception. According to M.O. Gurevich (1949), psychosensory disorders are the result of impaired sensory synthesis, as a result of which are distortions of complex perceptions of the external world and one's body manifest, while all sensations received directly by the sense organs are normal.

The perception from various organs of the senses is material for sensory synthesis relating to functions of the higher-order (they are called psychosensory).

Psychosensory disorders are clearly distinguished from other forms of perception disorders. They differ from agnosias because, in contradistinction to the latter, it the case of the former, recognition is not impaired; from hallucinations, psychosensory disorders differ from them in the fact that for hallucinations no real object of perception, and in case of psychosensory disorders the object exists in reality and only its mental reflection is distorted; they differ from illusions in the fact that in case of the latter recognition is impaired, but illusion errors are easily corrected, opposed to psychosensory errors, in case of which objects although being recognised are perceived in a stable distorted form. Psychosensory disorders also differ from simple, elementary sensory disturbances in which phenomena of lapse of memory or irritation are found, but not perversion, distortion as a result of disintegration. Due to the structural originality and integrated complexity of psychosensory functions, in case of pathology, not their simple destruction and weakening, but their complex disintegration; there is a reduction to a lower level. During the disintegration of psychosensory functions, not only these synthetic forms of perception are impaired, but in addition, pathological phenomena of disintegration, in the form of distorted components being a part of the impaired higher function, are revealed. Thus, in case of disturbance of perception of

space, optical vestibular symptoms are found, i.e. phenomena belonging to the components being a part of this synthetic function. It seems to the patient that everything around them is ruined, walls are shaking, and objects are falling onto them down. Psychosensory disorders are pathology with impairments of perception of sizes, mutual position of surrounding objects in space and/or sizes, mass, shape, location of individual parts of their body. Metamorphopsias, porropsias and dysmegalopsias are usually distinguished in the clinical picture.

- **Metamorphopsia** is a distorted perception of the size of objects. There are **macropsies** (an increase of the size of objects) and **micropsies** (decrease in size).
- **Porropsia** is a phenomenon when patients feel the change in the size of objects of the surrounding space while objects appear to be either too distant or too close.
- **Dysmegalopsia** is an altered perception of objects when they appear to be twisted around their axis, vertical or horizontal.

Most oftenly, psychosensory disorders begin in various combinations. In his work, E.S. Hamburg shows a medical record of a boy nine years old, who, along with the disappearance of swelling of his parotid glands and meningoencephalitis syndromes, had psychosensory optic-vestibular disorders: surrounding objects seemed to be small, tables and ceiling was bent, cupboard was curved and pot-bellied, he was small and funny. In a few hours, these disorders disappeared for a short time and began the next night again.

Disorders of body image are terminologically denoted as **autometamorphopsia**. In such cases, patients tell about an increase, e.g., of their head, their arm, one their leg, or both arms and legs.

Psychosensory disorders are often combined with phenomena of depersonalisation and derealisation. Most of the psychosensory disorders are associated with organic damages of the central nervous system (meningitis, encephalitis, brain injury, tumours, etc.).

Sensation Disorders

Sensations, as known, are the starting, initial point of perception. The sensation is a reflection of properties of the objective world springing under the influence of corresponding stimuli up: auditory, visual, tactile and other ones affecting sensory organs. In psychopathology, heightened sensitivity to various effects (**hyperesthesia**) and lowered sensitivity (**hypoesthesia**, **anaesthesia**) are distinguished.

Hyperesthesia is characterised by the amplified affect of various sensory organs by ordinary stimuli. In such cases, e.g., quiet rustling of leaves, in patients, causes the feeling of exorbitant hurting gnashing; usual ticking

increases to such an extent that it irritates, hits their head, disturbs to fall asleep. Patients have to remove all the objects which sounds irritate them (**hyperacussion**) from the room. Some patients note that they cannot stand sound of rumbling wheels of a subway carriage; such patients are forced to block their ears because otherwise their head starts buzzing and they feel uncomfortable. Similar phenomena of auditory hyperpathy are noted when sudden sounds begin (car signal, whistle, falling of an object down, clapping hands, etc.); in this case, patients shudder, they feeling muscle spasm. Such phenomena, as intolerance of the sounds of the radio or TV set turned on, or of the sound of a working TV set turned in its normal volume on as well as casual talking being calmly and quietly, are very typical.

In the case of **hyperpathy**, usual light stimuli can also cause an excessive response, such as the feeling of eyes gripe and lacrimation. This makes patients wear sunglasses or avoid lighted areas. Sharp flashes, blinking of a television or computer screen become intolerable for their perception; in extreme cases of photophobia, patients are forced to shut their windows at the midday even no blinding sun.

Similar phenomena of hyperesthesia can be in case of tactile sensations. Light touches the surface of their body and causes a sharp irritation response, "their skin is pimpled", it is necessary to withdraw your hand sharply to avoid the further unfavourable effect.

Hyperesthesia (hyperpathy) phenomena underlie asthenic syndrome.

The asthenic syndrome is characterised by fatigue, weakening or loss of ability for longtime physical and mental strain, irritability (irritable weakness) as well as hyperesthesia which is the central point of the syndrome.

The cases of irradiation of excitation from the centre of one higher sense organ to another are of great interest. This phenomenon is referred to as "**synesthesia**". This phenomenon consists of colour hearing and colour vision. In case of the colour hearing, perception of sounds, first of all, musical specific tones, is accompanied by seeing one or another colour in the form of a suitably smooth surface or some figure painted. For each specific person, the ratio between certain tones and corresponding colours remains quite constant although the colours as a rule appear to be quiet and, for the most part, are not rather defined or as if transforming one into another; for everyone who has such peculiarity, this ratio is individual, constant. Some prominent musicians (Rimsky-Korsakov, Čiurlionis) have had a colour hearing.

Colour vision is expressed most often in the fact that for reading, letters and words are painted with these or those colours. Other synesthesias are possible. Apparently, for some artists (Čiurlionis), the sensation of colour is experienced

uniquely and is accompanied by some auditory phenomena (symphony of colours, colour music).

Phenomena of **hyperalgesia** are typical for hysterical disorders, in which usual sensations, not perceived normally, are so strong that patients report of pain, in particular rheumatic and piercing one.

Hypesthesia, on the contrary, is characterised by the weakening of the effect of ordinary stimuli. Spoken words are perceived as very quiet; loud sounds do not cause irritation response as well as bright flashes of light, jabs and sharp touches. Such phenomena often begin from depression or torpor. Also, a phenomenon of anaesthesia, its symptoms can be found in patients with hysteria.

Senesthopathy (from the Greek *koinos* — "general", *aesthesis* — "sense", *pathos* — "suffering") is a disturbance of total internal sensitivity which is manifested clinically in a form of indefinite, diffuse and very unpleasant, regularly disturbing sensations inside their body, in particular, in one's abdomen, chest, head, under skin, etc.

Patients complain about hard-localised and wandering painful sensations that can be short-term but tend to be more intensive and longtime persistent.

E. Duprez and P. Camus, who were first to have introduced the term "senesthopathy" into clinical psychiatry (E. Duprez, P. Camus, 1907) have paid their attention to the painful nature of special sensations experienced by patients, as well as such sensation are very difficult to descript them exactly (**essential senesthopathies**).

Senestopathies often develop leisurely, gradually. In their beginning, they manifest mainly as sensations like painful one (**senestoalgia**). Sometimes, these are sensations of heat, cold, or tingling. At the initial stages of the disease, localisation of senesthopathies is most often superficial (under their skin, inside their skin), they manifest in various parts of the body; at all that, their spreading area does not correspond to the local nerve supply of the areas, where senestopaties begin. They can be sporadic by the time of their manifestation and can be done repeatedly and last for quite a long time. At the same time, patients talk about acute, darting, breaking, cutting, stabbing, throbbing, obtuse, and overflowing pains. Sometimes similar sensations have a thermal component, e.g. sensations of burning, heat, combustion, icy cold, and shivering. Sensations of the "pressure" nature dominate in other patients: they complain about unpleasant tightness, compression, pressure, inflation, stretching, and expansion. The similar sensations can be simpler, not sthenic; they sometimes intensify, become diverse and insufferable, spread over large areas of the body, and sometimes cover the entire body.

Such sensations can be narrowly pointed and sometimes cover wide areas. One type of senesthopathy in one part of the body can be replaced with

another in the same part of the body or migrate to other ones. Senesthopathy of a different type — psychogenic, thermal, pressure ones — can occur simultaneously in the same patient. The excruciating nature of this particular pain makes patients appeal to physicians of various specialities: therapists, rheumatologists, surgeons, and neurologists. Only when such treatment at therapists is completely useless, patients are referred to a psychiatrist.

Special painful sensations occur in viscera, deep tissues, and body cavities. Senesthopathy with a sense of pressure and stretching prevail. Later, modification of deep senesthopathies manifests due to the sensation of movement inside the body in patients. In this case, they tell of friction, sliding, contraction, stretching; further, they consider pathological sensation to migrate along the beaten track: the sensations begin, e.g., in the lower part of the belly, then spread to their chest, area of neck, head, then they can gradually weaken or even disappear. For as time, all it starts again. This may last for several months or even years. Sometimes the sense of "migration" is added by those being difficult to qualify, which use the term "unordinary sensations". Patients tell that they feel itching in their viscera, tissues, body cavities; feel the blood move through the vessels forming turbulences; a complaint about something to gurgle, burst, bubble, flow from one place to another in their heads and viscera. They can feel warm or cold streams passing through their body; they are like whirlwinds; in addition, such patients feel the displacement of body layers, changes in the mutual arrangement of their viscera, rolling, pulsation, twisting, and internal vibrations. Due to such sensations to be unusual, many patients cannot describe them.

Senestopathies are most often combined with hypochondriac phenomena and form a **senesthopathic-hypochondriac syndrome**; its essence is overvalued fixation in their health due to heavy and unusual sensations that many patients consider to be a pain. Most often, similar senesthopathic phenomena manifest in the case of endogenous diseases (schizophrenia).

Progress Check

1. Define true hallucinations.
2. What are pseudohallucinations?
3. What is the difference between pseudohallucinations and true ones?
4. What extracampine hallucinations can be characterised by?
5. What is the difference between illusions and hallucinations?
6. What are psychosensory disorders?
7. What are senesthopathies characterised by?

Check Problems

1. Patient: V., female, 28. After taking atropine, the patient felt severe dryness in her throat and mouth. She tried to drink water but could swallow only a few drops. After that, she tried to write something in her notebook down, but the letters merged, and they emitted bright rays. Later, in front of her eyes, she began to see crêpe-covered screens with bunches of roses. Their petals began to unfold and, out of them, tiding their skirts, lovely little shepherdesses wearing colourful costumes were going out. It was very beautiful. The patient got up, looked into the corner of the room and saw a colourful sofa where two completely unknown people sat. Then all this disappeared, and the room and all objects in it became usual.

Define the pathological state of the patient (delusion, hallucinations, or depressive state).

2. Patient: P., male, 20. He suddenly grabbed a bottle with water and threw it into the head of his relative. After that, the patient fell into a state of inhibition, did not answer questions, refused to eat. In about an hour, he told his mother that he had heard a voice saying him: "If you kill someone, you will be saved." This voice was inside his head and was quite unusual and indistinct, and seemed to be made for him specially.

Define patient's pathological state (illusion, auditory hallucination, or euphoria).