NON-SURGICAL TREATMENT OF PITUITARY DISORDERS.

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 Possibly the best classification of pituitary disorders into groups for purposes of therapy is that based upon a primary division depending upon characteristics of the sella turcica, with secondary qualifications, in each division, based upon the symptomatology. Objections to such a scheme, of course, easily obtrude themselves, but in my experience, I have found it the most efficient. The basic reason for such classification is the evidence, more or less accurate, that is furnished frequently by sellar changes in the course of a pituitary disorder determining the self-limitation, either complete or partial, of the process. Upon the extent of the success of such limitations, therapy may be unnecessary or it may be radical. Between these extremes, all gradations are to be considered.

Such a classification is here appended, but it does not presume to be either complete or final, but is simply an attempt to clarify the present situation. Especially under the symptomatology only the salient features are indicated,—sufficient for the recognition of the various types amenable to therapy.

- Character of Sella Turcica.
- With no demonstrable physiological enlargement or diminution.
- Seemingly normal sella.

- Salient Features of Symptomatology.
- Underactivity.—Usually undersized; maxillary prognathism; crowded teeth; adiposity; Froelich's dystrophy; low blood pressure; menstrual disturbances; diminished libido; diabetes insipidus.

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Character of Sella Turcica.  Salient Features of Symptomatology.

With demonstrable smallness of sella turcica and lack of cavity space for proper expansion of the gland.

Signs of congenital hypopituitarism; may or may not be headaches; Froelich's dystrophia adiposogenitalis; lack of proportionate skeletal build; fatigability; adiposity; usually small genitalia and perhaps reversion in type; sex abnormalities.

Mental Signs.—Compulsions; lack of inhibition; pathological liars; intellectual and moral inferiority; little initiative; epilepsy.

High sugar tolerance. Frequent relative lymphocytosis.

Demonstrable original smallness of sella turcica with erosions, enlarging the cavity in any or all directions.

Pressure Signs.—Long-continued and periodic headaches, occasionally migrainous with ophthalmoplegia—third nerve, fourth nerve, sixth nerve; unilateral temporal headache with lacrimation (nerve from ophthalmic division of fifth); epilepsy, with later uncinate fits.

Metabolic Signs.—Fatigability with headache and irregular menses and suprarenal deficiency. Secondary frequently to status thymico-lymphaticus. Disturbances in growth; acromegaly; spacing of teeth; prognathism.
## Character of Sella Turcica

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<th>Character of Sella Turcica</th>
<th>Salient Features of Symptomatology</th>
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<td>Demonstrable enlargement in all cavity dimensions.</td>
<td>Mental.—Slow development; gradual self-adjustment; and cure.</td>
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<td>If Erosion Anterior.—Bitemporal hemianopia.</td>
<td>If Erosion Posterior.—Pyramidal tract lesions.</td>
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<tr>
<td>If Erosion Lateral.—Oculomotor disturbances; migraine.</td>
<td>If Erosion Posterior.—Pyramidal tract lesions.</td>
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<tr>
<td>Pressure Signs.—Headaches; bitemporal hemianopsia; oculomotor palsy; epilepsy; intracranial pressure; papilledema.</td>
<td>Metabolic Signs.—Acromegaly; gigantism; disturbed sugar tolerance; etc.</td>
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## Therapy

**Group A. Underactivity.**—If this underactivity be presumably of the anterior lobe, giving rise to low temperatures, deficient genital development, Froelich’s dystrophy with attendant physical and mental characteristics, then feeding of the whole gland in doses of from one half grain as infrequently as once or twice a week up to one or even two grains three times daily may be administered, depending upon the reaction of the patient to the dose, especially as regards the production of headache, excitability, insomnia, nausea, and vomiting, and rapid fatigability. But in addition thereto, either feeding of the anterior lobe, or hypodermic injections of the anterior lobe extract, will often be found of value, especially in the Froelich syndrome with genital lack of development and in low bodily temperatures. Very small doses of thyroid gland, gr. $\frac{1}{30}$ to gr. $\frac{1}{5}$, every day or on alternate days, will frequently enhance the effect of the pituitary administration. If the disturbance symptomatically may be referred to the posterior lobe, then whole gland feeding as above mentioned may be carried out in the same way, but as an adjuvant; occasional hypodermic injections of the posterior lobe extract (pituitrin, etc.) in doses varying from 0.3cc to 1cc may be added.
thereto. But if these injections are given once or twice daily in full amounts, they must not be continued for over a week at a time. Intense asthenia may otherwise be produced. Especially in uncompensated cardiac conditions is this measure to be very carefully administered, if at all. In critical cases, with extremely low blood pressures, great fatigability, and conditions of shock, besides whole gland feeling, if that is possible, rapidity and greater certainty of action are produced not only by hypodermatic injections of pituitrin, but also by rectal injection of saline dilution of pituitrin and intravenous saline dilution as well. In cases of diabetes insipidus, both hypodermatic and intravenous injections of pituitrin are of service in diminishing considerably the output of urine. If the fatigability is very great, occasional additions of whole gland suprarenal extract (not adrenalin) are effective.

_Overactivity._—The therapy in this condition varies, dependent upon the cause for the overactivity. If this cannot be found and eliminated, then it is wise to give sedatives such as luminal, which is very effective in doses of one half grain once or twice a day for a few days at a time. Pilocarpine in one-tenth-grain doses or acetanilid in two-grain doses several times daily are alternates to the use of luminal. Frequently, however, disturbances in the genital sphere, the climacteric, will produce secondary pituitary activity. In these cases administration of lutein or ovarian extract will be found of benefit. When the activity is secondary to a thyroidectomy—as is occasionally seen—then small doses of thyroid gland will relieve the symptoms. In too early thymic involution, with pituitary overactivity, thymus gland in one- to five-grain doses several times daily is often effective. Occasionally an inefficient chromaffin system will give rise to overactivity on the part of the pituitary, which may be offset by feeding whole gland suprarenal extract.

It may not be amiss at this point to give my experience with the so-called antagonistic therapy as applied to hyperhypophysism. That is to say, the administration of pituitary gland in cases of pituitary hyperactivity. The rationale of such procedure is of course that immediately available pituitary extract will tend to diminish the requirements made upon the pituitary body and so produce a gradual diminution of its activity. If
such procedure is undertaken, I have at first found an increase
of the symptoms complained of, sometimes the headache
becoming unbearable, but if the administration is then stopped
for a few days, a condition of relief from all the original symp­
toms supervenes. My plan in such cases is, therefore, to give
fairly large doses—one grain three times daily of the whole
gland for two or three days at a time with a succeeding interval
of rest. I have had a fair measure of success with this method.

GROUP B. This group represents in the adult the various
uncompensated hypopituitary conditions. In children, there
is still the hope for a gradual enlargement of the sella turcica
present, and hence whatever now may be said, refers to the
adult cases. In children and adolescents it would be wise to
have occasional radiographs (one or two a year) made of the
sella turcica to determine possible enlargements. In adults
then, these cases require feeding of the whole gland for an in­
definite time, much as thyroid feeding is required in myxœdema.
The dosage is to be regulated between the extremes of toler­
anace and the relief of symptoms. It will be found that as the
patients become familiar with changes in their condition, they
will gradually begin to regulate the dosage themselves, usually
at the lowest point sufficient to overcome their difficulties.
Again, the same suggestions are here pertinent that were ad­
vanced under the "underactivity of the pituitary" in Group
A. It is to be remembered, however, that thyroid feeding in
this group (B) is usually contraindicated for the reason that its
administration gives rise to severe pituitary headaches. How­
ever, suprarenal gland, in cases complaining of great fatigabil­
ity, is usually a valuable adjuvant. The dose should be about a
half-grain three times a day, gradually modifying it to meet
requirements. It should not be continued over a week or ten
days at a time.

GROUP C.—In this group we find the signs and symptoms
that are of so much importance in ophthalmology. Bitemporal
hemianopsia, oculomotor palsies with occasional swelling of
the disks are the more important manifestations. It is also,
however, in this group that we meet with the compensatory
enlargements of the hypophysis that finally are the determi­
ning factor in the automatic readjustment of the disturbed
processes in the internal glandular mechanism. For this reason,
it is well to administer glandular products with caution, and always in small dosage. The determining factor for therapy is the intense headache, usually of migrainous character, with perhaps temporary oculomotor palsies or choked disk. Epilepsy is a not infrequent symptom. A good plan is to begin with pituitary feeding of whole gland in about one tenth to one quarter grain doses daily or on alternate days and gradually increase if necessary. It is my practice to omit the administration for one or two days a week in any event. If there is no response to this, the dosage is pushed up to tolerance and kept there for a few days. Usually, providing the erosion of the sellar walls is not due to neoplastic involvement, we get pronounced relief and the condition goes on to actual cure.

Occasionally,—in my personal experience three times,—symptoms which were those of either cyst or tumor of the hypophysis, including headache, vomiting, bitemporal hemianopsia, choked disk, and in one case double ankle clonus, and a positive Babinski, disappeared completely and two of the patients are now alive and well after several years, with absolutely no signs of their disturbance remaining. The therapy consisted in combinations of feeding and hypodermatic injections of pituitrin as its basis. Frequently the cases in this group develop their hypophysial hyperplasia as a compensation for a deficient adrenal system. In these cases, it is unwise to administer thyroid even in small doses, for their blood pressures drop, a white Sergent line is evoked, acidosis develops, and symptoms of collapse come on. If this is surmised, thyroid may be administered in small doses, grain one tenth every other day, combined with suprarenal gland. It is supererogatory to state that the frank tumor cases, if not rapidly responding to treatment, need operative interference, or radium therapy.

GROUP D.—By the time the sella turcica has reached the universally enlarged stage, with perhaps no clinoids left, or with the erosion developed to the point of canalization into the sphenoid sinus, the physical signs and symptoms will have proceeded to the point at which either, in a compensatory manner, due to simple hyperplasia, the adjustment is complete and no further therapy is indicated, or else the enlargement was produced by a new growth and the symptoms have arrived at
the stage where short of surgical intervention or perhaps radium therapy, nothing else is of avail. The symptomatology due to such cause at this time will be of any and every variety of disturbed pituitary function, deficiency symptoms of one lobe combined with hyperactive ones of the other and perhaps all dominated by the mechanical signs and symptoms of intracranial pressure. The reason for such combination is not far to seek and need not be entered upon here. Therapy is of practically no avail. Nevertheless, even the best of cranial surgeons have declared that even at this stage all possible therapeutic measures and glandular administrations should be invoked before surgical intervention is attempted.

In placing before you such a schematic representation of therapeutic measures, please let it be understood that it is schematic and that it is only to serve in a general way for guidance. No patient or disease can properly be treated according to tables of drugs and dosage any more than that two human beings are constructed alike or think alike. Individualism is the keynote.