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PSEUDONEUROTIC SCHIZOPHRENIA

A. LINDENFELD, M.D.

The classical subdivisions of Schizophrenia as described by Kraepelin has stood the test of time and is still valid. This consists of the four types, namely — Catatonic, Paranoid, Hebephrenic and Simplex. The first three have rather clearcut clinical manifestations, thus offering little diagnostic difficulty in well developed cases. The last type may often be confused with other diseases, notwithstanding its benign title. This is due to vagueness of its symptomatology and absence of specific delusional or hallucinatory manifestations.

The basic concept of Schizophrenia as developed by Bleuler still forms the foundation of our understanding of its psychopathology. Since the days of these pioneers of psychiatry subsequent workers added observations which broadened the concepts. As witnessed by the present inadequate rate of remissions, there is ample opportunity for further research.

On the basis of clinical experience it was found that some of the fully developed depressions, or affective psychoses were really manifestations of a Schizophrenic process. Thus the term of Schizoaffective Reaction was added to the former classification.

Regardless of which form the patient may ultimately develop there may be phases during the course of the disease which are suggestive of a neurotic process. There are many schizophrenics who may never develop any of the classical forms of the disease but will exhibit mostly neurotic manifestations. These are the types which Hoch and Polatin refer to as Pseudoneurotic Schizophrenia.

There are no available statistics as to the relative incidence of this form but it is apparently more common than formerly recognized. These patients are more likely to be treated on an out-patient or general hospital level. Their symptomatology is not sufficiently dramatic to demand treatment in psychiatric hospitals. The name "pseudoneurotic" by itself explains partly the reason for the failure to recognize it more frequently than it occurs.

Neurotic symptoms may be the manifestations of a variety of diseases. Like fever, malaise, nausea and vomiting they, too, may usher in or accompany toxic, infectious or organic brain diseases. They may also be the cardinal symptoms of true neuroses. These may include anxiety states, conversion reaction, phobic or obsessive-compulsive states. In order to establish the significance of such neurotic symptoms the physician must first diligently exclude the existence of a truly somatic disease by physical, laboratory and other appropriate
examinations. Diagnosis by exclusion alone may be misleading and hazardous. That the neurotic symptoms are manifestations of a neurosis or psychosis should be established by an evaluation of the total profile of the disease process. One must then further attempt to differentiate between a neurosis and a psychosis. If it is considered that the condition is a psychosis, what is its form? Neurotic symptoms may be found accompanying Manic Depressive, Arteriosclerotic, Schizophrenic or other psychotic entities.

The criteria for such differentiation may not at all be clearcut. It is more rewarding to look for some of the positive, although general characteristics of a schizophrenic process. These may be investigated in the following method of approach:

1. The patient's basic personality makeup as exhibited by his life history.
2. The character of his symptom content.
3. The reaction to his existing symptoms.
4. The course of his disease pattern.

Most physicians are familiar with the characteristics of the so-called schizoid personality. These are often recognized during the adolescent period. Typically, he is the introvert, the daydreamer, the one who has no need for companions or finds it difficult to associate with them. Notwithstanding his intellectual ability he fails to adapt himself and perform adequately or appropriately in a scholastic, social or family setting. He is not accessible and may be considered egocentric.

When these defenses against anxiety or frustration are no longer adequate his "neurotic" symptoms may become apparent. These may include any and frequently several of those which occur in a true neurosis. Indeed, some refer to such a schizophrenic picture as being polyneurotic or pan-neurotic. Bodily symptoms affect several systems at the same time or in an unorganized sequence. Palpitation, backache, flatulence or dysuria follow each other in a whirl-like fashion. If continued, they become somatic delusions. Fear of dirt or of closed places, compulsive touching, or compulsively walking five steps before speaking may really be a protection against paranoid ideation or hallucinosis. Hostility in a true neurotic is often times repressed or is expressed in a subtle, camouflaged manner against a parent, a sibling or their symbolic representatives. The schizophrenic will curse them, or may attack them openly. Their psychosexual behavior is often polymorphous and perverse. They may include pregenital as well as genital levels. If not overtly so, their existence may become evident under Sodium Amytal interview, in their drawings or by some psychological tests as the Rorschach.
The patient may seek the physician’s help for his symptoms but his emotional reaction to it is often superficial or inappropriate. He may continuously recite and repeat his symptoms in a stereotype fashion like a record when the needle is stuck. He may smile, wink or grimace while demonstrating the location of the pain, numbness or “fuzzy” feelings. He may appear annoyed or insulted and as one patient put it, “Why should I tell you how I feel, you won’t believe me anyhow.” Some may state it simply that since they have a bad foot, perhaps hammertoes, they cannot accept any job requiring standing or walking. One patient noted an aggravation of his indigestion after performing some chores around the house. This gave him justification to reject any form of useful occupation and thus indirectly protecting himself against society and the outside world. Generally, the patient’s reaction to his symptoms is like his reaction to life situations in general—unrealistic, studded with fantasies and omnipotent magic-like thinking.

Many of these patients may continue with their neurotic-like symptoms without developing or expressing some of the more symbolic and projected manifestations or behavior. Some may undergo an episode of a full fledged psychosis which may fall into one of the Kraeplian forms. As this phase may respond to treatment, the patient will return to his former clinically milder state. Unfortunately, this state is still often incapacitating and remains resistant to further therapeutic efforts.

The following examples are intended to illustrate some of the points discussed. Detailed history and possible psychopathologic data are omitted in favor of clinical symptomatology.

**CASE NO. 1**

J. D., a 26 year old man, was first seen on August 1, 1953 complaining of feeling as though he were going to faint. He felt tense, uneasy, as though something grabbed his heart which then would beat fast. Then he could hardly swallow, had sensation of “butterflies” in his stomach and “heat flashes.” He was afraid to fall asleep fearing one of these attacks. He lost confidence in himself, stopped working, avoided social contacts and eventually became confined to the house.

The onset of his symptoms followed the breaking up of his marriage. They became intensified when he was rejected from military service allegedly because of high blood pressure. He felt as though he was “jilted” all over again. He was studied at his local hospital where clinical, laboratory, X-ray and electrocardiographic studies failed to reveal any organic pathology. At this time his pulse rate was 80, his blood pressure 170/100. There was increased sweating of the palms.

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of the hands. Neurologic examination otherwise revealed no pathologic findings.

The original impression was that his symptoms were suggestive of a psychophysiologic disturbance.

He had a total of nine office interviews during the course of which additional material was elicited. As he was reciting his symptoms he smiled, spoke in a monotone, reminding one of a person who complains of excruciating pain but shows no outward manifestations of distress. It was further brought out that he always made a poor social adjustment, never could make friends and tended to keep to himself. He considered the other "kids" as being jealous and now lost faith in all people.

He made no progress under psychotherapy and medication. On February 2, 1954, he was admitted to the Allentown Hospital for further study and treatment. At this time he appeared rather withdrawn, exhibited a constant unmotivated smile. He complained of a sensation as though something would be plunging through his system momentarily. He thought that he heard bells ringing and had an urge to jump out the window. His blood pressure was fluctuating between 130 and 150 systolic. The Funkenstein test was inconclusive as to whether he would be a successful candidate for electroconvulsive therapy. At this time a diagnosis of Schizophrenia was made with pseudoneurotic manifestations. He was started on a course of electroconvulsive therapy. After the eleventh treatment he was discharged improved and was to continue with out-patient treatments. He developed an increasing resistance against the treatments and after the third out-patient session he failed to return. He was last seen in the office on June 1, 1954. He felt better, but his symptoms would still occur when active but stated that he didn't care about them any more. He still wasn't employed, his outside activities were still limited and his plans for the future were vague.

Comment:

The presenting symptoms of this young man were those frequently seen in anxiety states or psychophysiologic disturbances. Further study revealed a schizoid background and behavior. His response to treatment was incomplete and when last seen he was still disabled but was more indifferent about his symptoms.

CASE NO. 2

B. T., a 46 year old man, was first seen in the Neurologic Clinic of the Allentown Hospital on October 11, 1933. His complaint at that time consisted of generalized tingling in the body, pain and weakness
in the calves of his legs. He felt fatigued. He had a “loosening up and hard feeling which makes me catch colds.” Neurologic examination was within normal limits. He was employed in a silk mill but was discharged because he ruined considerable material due to carelessness.

A diagnosis of Neurocirculatory Asthenia was made at that time. He continued attending the clinic and was probably one of the most steady patients in the history of the out-patient department. He still attends with great regularity and was last seen on February 24, 1955, by this time being 67 years of age. During these years he has been seen by a number of physicians who were on out-patient service and there has been no essential change in his symptomatology. He has shown no interest in the world around him, being entirely satisfied with his remarks about his bodily symptoms. The only changes in his life pertained to the demand for a constant change of medication. One was not strong enough, or not expensive enough, or too strong or didn’t contain enough vitamins. One of the attending physicians made the observation that he was obviously a Schizophrenic of many years duration. A sample of his conversation exhibits a tendency to disorientation and resembling neologisms. It also illustrates his thinking as well as his way of life. “Shaky, dizzy on feet, nerves, job. Nerves don’t cast off enough to soak it. Weakness of lower ribs. It seems to be sort of stayed loose. Legs numb, twitching eye. I don’t do much because I don’t feel like going out much. I stay in the house and work on some arithmetic and go out for groceries when I want to.”

CASE NO. 3

Mrs. F. G. This 29 year old mother of two children expressed feelings of depression, an urge to run aimlessly and fear that she might harm her children, and of going out of her mind. She tried to describe a perceptive disturbance which she referred to as “visions.” This was very difficult for her to explain. The best way she could illustrate it was by saying that dark things looked much darker and bright things looked much brighter than they were and this frightened her.

Her presenting symptoms therefore included an affective disturbance, phobias, obsessive-compulsive thoughts and possibly hysteriform disturbances.

The history revealed that during childhood she often had the feeling that something serious was going to happen to her and would be afraid to go out. At about the age of 12 or 13, while attending a motion picture performance, she had to get up and leave the theatre. Many times since then she would stay home from school because of her extreme uneasiness.
She married five years ago. Her husband is a career man in the United States Navy and they frequently had to change their residence. Her symptoms continued and gradually became more overwhelming. Eventually two separate suicidal attempts occurred. During the second attempt she inflicted numerous severe wounds on herself and was admitted to a psychiatric hospital for treatment. She improved with electrocerebral stimulation and chlorpromazine and was discharged in care of her parents. It was after her discharge that she was seen in the office and presented the complaints as described above. She improved considerably on eleven electroconvulsive treatments as an out-patient. The depressive features disappeared but she is still in need of continued supportive psychotherapy.

The schizophrenic process is a faulty method of dealing with frustration and anxiety. It may be reproduced on an experimental level in laboratory animals. In this manner through reflex conditioning stereotype behavior or withdrawal can be induced as seen clinically in the Catatonic form. It may be reproduced in some forms by administration of certain drugs or toxic agents (e.g. Bulbocapnine). In humans the maladaptation is more likely to occur through highly symbolic manifestations and disturbances of thinking. In the cases cited and in the pseudoneurotic forms in general, neurotic symptoms are utilized. This form is rarely followed by deterioration or complete withdrawal from reality. The more colorful delusional or hallucinatory manifestations are still not overtly exposed. The fantasies are still hidden by a protective layer which may require considerable time or special investigative measures to penetrate. It is perhaps for this reason that some are treated for prolonged periods as psychoneurotics before the true nature of the condition becomes apparent. Even when treatment is shifted in another direction the prognosis remains guarded. While most of them may not require prolonged hospitalization, they seldom are able to assume a useful place in Society. Efforts at occupational rehabilitation are likely to become unsuccessful. Recently psychosurgery, such as transorbital lobotomy, is recommended for the more resistant cases.

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Most of the patients with bronchial asthma can be managed in the physician's office or his home. It is only when the attack lasts a long time and is quite severe, as in status asthmaticus, that treatment in the hospital may be necessary. Since the disease is difficult to manage in terms of patient comfort, it is good from time to time to review our thinking and add to our knowledge any new therapy that arises.

**CLINICAL PICTURE OF THE ACUTE ASTHMATIC ATTACK**

When the patient presents himself at the physician's office in an acute episode of bronchial asthma, he is generally quite apprehensive and dyspneic. The accessory muscles are usually visible, his chest is in extreme inspiration, and expiration is prolonged and difficult. Cyanosis is not a symptom of simple asthma, but occurs as more and more dead space occurs in the lungs, in chronic emphysema, or with cor pulmonale. Vital capacity is reduced. The chest reveals many musical rales, rhonchi, and a sound of difficult air exchange throughout both lungs equally. The cardiac borders are indefinite, and the heart sounds distant. The blood pressure is down, venous pressure up, and the whole patient presents a picture of moderate to severe discomfort.

If the patient is seen on repeated visits, in similar circumstances, there is generally no difficulty in diagnosis. If, however, the patient is seen for the first time by the physician, he must differentiate the suspected bronchial asthma, from the following conditions:

1. **Bronchitis** — In this state there is absence of musical rales. There is a chronic cough with purulent sputum. In the more chronic type, there is absence of paroxysms of wheezing except to a mild degree when such patients are exercising. There may or may not be fever.

2. **Cardiac Asthma** — Often there may be a history of heart disease. Rapid pulse is common. A history of orthopnea, and paroxysmal nocturnal dyspnea can be elicited. Cardiac asthma is the most difficult to differentiate from bronchial asthma. With doubt, epinephrine should not be used until more definitive diagnosis can be made.

3. **Emphysema** — Although there may be some bronchial spasm with emphysema and wheezing on exertion, there is almost always improvement on rest, which is contrary to what one finds in bronchial asthma. There are generally no rhonchi because there is no moisture, except when complicated by infection.
(4) Bronchial Obstruction — The causes may be many: bronchogenic carcinoma, stenosis of the bronchi due to infection, particularly unrecognized in long-standing tuberculosis or pyogenic infection, or foreign body. The wheezing heard in obstruction is a stridor, because the large bronchi are usually involved and the sound is unilateral, loudest during inspiration, and constant over the site of obstruction.

If fine rales are heard anywhere in the chest, particularly in the lower lobes, this would signify infection and would be strengthened with the occurrence of a fever. In such instances, antibiotics should be added to the regime.

The typical sputum occurring with bronchial asthma is usually thick, clear, tenacious, and with a glary character. There are many eosinophiles with few neutrocytes. With infection, more of the latter occur. If a smear were made of the sputum, Laennec's pearls, Kurshmann's spirals, and possibly Charcot-Leyden crystals could be seen. The spirals are simply pearls unwound.

After diagnosis is made, therapy instituted, and the patient made comfortable, a more complete examination of the patient should be made. This includes:

(1) History — The age of onset of symptoms should be noted, the timing of the attacks, free time, with all time accounted for, and dates of change of residence, occupation, dates of operations and intercurrent disease.

(2) Physical examination — A complete examination should be done, including nutrition, examination of the nose and foci of infection.

(3) Skin tests (scratch and/or intra-cutaneous) — There may be many discrepancies between the skin test and the symptoms, and if so, the history should be the guide. It must be kept in mind that sensitivities change from time to time. Bronchial asthma, like all other diseases, should not stimulate an examination of the chest only, but the patient as a whole.

ETIOLOGY

The following is a classification by some authors:

(1) Asthma below the age of 30 years (allergic type) (extrinsic) — This type generally has a good prognosis and no deaths. Usual causes:

(a) Pollens — trees (April to June); grasses (May to August); weeds (from August to October, with ragweed most common around August 15).

(b) Animal Danders — cats, dogs, horses, feathers.
PREVENTIVE AND SPECIFIC MEASURES

These measures are used in an effort to prevent the attack, and best results occur when the allergen can be found and avoided; when it cannot be avoided, hyposensitization (desensitization) is done. Paroxysmal asthma is generally relieved on removal of the allergen, while chronic asthma will not be relieved. The patient is told, in writing, what to avoid, for best results.

(1) Environment — Protection of the children of allergic parents from the most common causes, even though they do not manifest the disease. These include animal dander, feathers, kapok, orris root, etc. Even if skin tests are negative for dander, pets should be eliminated. The basements of homes should be kept dry because of the possibility of developing molds. Calcium chloride, dehumidifiers and airing the basements are usually of benefit. During the summer when these youngsters go to camp it may be wise to do scratch tests and either to avoid camps with offending pollens, or to have them go to these camps during times other than pollen seasons. Their homes should be kept as free of dust as possible, using rubber throughout the house where possible and plastic drapes, dust proof mattresses and pillow cases. Tank-type cleaners should be used. Linoleum can be applied to the bottom of over-stuffed chairs. Non-allergic cosmetics should be used.

(2) Asthma later than 30 years (non-allergic) (intrinsic) — In this type the cause is usually unknown and deaths, 7.6%. It occurs regardless of season, occupation, diet, or medicines. Probable causes:

(a) Somatic — infected teeth, malnutrition, bacterial infection of the bronchial tubes.

(b) Psychic.

(c) Polypoid and bacterial sinusitis.

(d) Emphysema — primary or secondary.

If a patient suddenly develops another episode of tightness on the chest, infection is probably responsible.

(c) Occupation — dust, and odors.

(d) Household dust — pillows, mattresses, overstuffed furniture. This appears to be the most common cause of this type of asthma.

(e) Foods — eggs, wheat, milk, fruit.

(f) Drugs — sulfa, salicylates, penicillin and barbiturates.

These etiologic factors may be complicated by infection, physical depletion, asthmatic bronchitis and vasomotor rhinitis.

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be used. If the house is air conditioned, filters can be used. Moving to another county, where the allergen is not found, may be the last resort. A physician’s visit to the home may be necessary in some instances, if good results are to be expected.

(2) **Diet** — Skin tests are of little value. The only sure way of deciding which foods are causing difficulty is to use an elimination diet. Molasses, veal, lamb, carrots, rice and apple sauce three times a day are a good start and, at weekly intervals, one new food is added, to determine untoward effects. This requires much cooperation of the patient and requires time.

(3) **Minor allergies** — Eczemas, hay fever, and recurrent bronchitis require investigation by an allergy survey. Minor allergies may become worse. When allergens are discovered they should be removed, and if this cannot be done, hyposensitization instituted.

(4) **Occupation** — Allergic individuals and their children should avoid occupations, such as farmers, furriers, bakers, upholsterers, millers, and florists. They should be directed into professions, business, insurance work, salesmen, et al.

(5) **“Colds”** — If a patient, who is a known asthmatic, acquires a cold, in addition to the usual therapy, ½ to 1 c.c. of ephedrine in oil, deeply injected into the gluteal muscle with ½ c.c. of 1 percent procaine, on the first and second day of the cold will frequently prevent the occurrence of asthma but does not affect the “cold”.

(6) **Skin Testing** — The mechanics of skin testing will not be elaborated on in this article. Suffice it to say, that if the physician treating the patient does not have the necessary equipment, or the time, he might refer patient to an allergist or another physician who does this type of work.

(7) **Hyposensitization** — After the offending allergen is detected, by whatever method is employed, and the allergen cannot be removed from the environment, hyposensitization should be started. The starting strength of the allergen responsible for the asthma depends on the reaction of the skin test. Moderate reaction can safely be started with dilutions from 1:100,000; greater reactions, with dilutions of 1:1,000,000 or 1:1,000,000,000. The best results are noted with the year-round treatment and during the pollenation season, the dose should be reduced about 25%. Injections are given about two weeks apart throughout the year. As for the quantity of the dilution injected all doses must be individualized, and local as well as systemic reactions, taken into consideration. Ordinarily, to develop the greatest degree of response it is best to start twice a week with dosage of 0.1 c.c., and if little reaction
occurs up to 0.15 c.c., and continue with increments of about 0.05 c.c. until the dose arrives at 0.85 c.c. At this stage, the next lower dilution is started again at 0.1 c.c. and built up as before continuing until you get down to fairly strong dilutions 1:1,000 or less, or those dilutions which will control the symptoms of the patient. Again, the approach to hyposensitization must be individualized and the patient's comfort must be the guiding point.

NON-SPECIFIC TREATMENT (SYMPTOMATIC)

Some patients do not feel that their symptoms are severe enough for specific hyposensitization, and because of the rarity of the attacks, are willing to be treated symptomatically. Reassurance of these people is of prime importance. Some authorities feel that deaths are rare unless morphine is used. The calm confidence of the physician helps much in these patients.

The following are agents most commonly used:

1. **Aminophyline** (drug of choice in adults) — 0.25 grams (3½ grains) in 10 c.c., intravenously, given slowly over 4 to 5 minutes. At the first sign of faintness, palpitation, numbness and tingling and perspiring, the injections should be stopped. ACTH intravenously, in the hospital, is the only effective treatment for this reaction, if severe. Aminophyline 0.5 grams (7½ grains) may also be given intra-muscularly with ½ c.c. of 1% procaine hydrochloride mixed in the same syringe. Combined with ephedrine, aminophyline may be useful in mild attacks, but in general, aminophyline by mouth has been disappointing. Choline theophyllinate marketed, as Choledyl, and Cardalin, is some improvement over other oral preparations. Aminophyline in suppository dosage of 0.5 grams (7.5 grains) for adults and 0.3 grams (5 grains) for children may be used very successfully. Rectal pain and burning are not uncommon. One of the most useful ways of giving aminophyline by rectum is in solution. Patients can do this themselves, it causes little difficulty, and has been quite successful in relieving acute attacks, as well as preventing attacks during the night. This can be accomplished by using a 14 or 16 French catheter, and a baby rubber enema bulb, or an ear syringe. Four or five uncoated 0.1 grams (6 to 9 grains) pills (or powder—6 to 9 grains) can be dissolved in 20 to 30 c.c. of tap water and given rectally through the catheter.

2. **Epinephrine** (drug of choice in children) — A solution of 1:1,000, injected in the outer upper arm, adults 0.4 to 0.5 c.c., and children 0.2 to 0.3 c.c. Larger doses do not give any further relief but increase the side effects. Average doses may cause side effects and
these can frequently be avoided by using antihistaminics, although recent work has thrown some doubt on the efficacy of these drugs, in this regard. If used, 0.5 c.c. of histadyl, benadryl or pyribenzamine can be placed in the same syringe with the epinephrine. Some reports lead us to believe that the anti-histaminic augments the effect of the epinephrine. \( \frac{1}{2} \) to 1 c.c. epinephrine in oil with 0.5 c.c. of 1\% procaine may be given intra-muscularly, to a child or adult, for prolonged effect. Sus-phrine (Brewer Co.) is a long acting crystalline epinephrine suspension (1:200). This is given in dosage of 0.4 c.c. (adult) and 0.2 c.c. (child), subcutaneously. 1:100 epinephrine solutions are used in oral nebulizers with good effect for a slight to moderate attack. Overuse of these, as well as any of the epinephrine or ephedrine like drugs, can cause fastness and/or side effects (nervousness, tachycardia, sweating, etc.). Other substitutes for nebulizers are vaponephrine, isuprel and aerolone. These may, in some patients, act as well and when fastness occurs might be a good substitute. The possibility of urinary retention in older individuals is always possible with the use of ephedrine.

(3) Sedatives — Can be given to allay nervousness. The best ones to use are the barbiturates, paraldehyde, benadryl and chloral hydrate. Use morphine and demerol with extreme caution, if at all, because of their ability to depress the respiratory center. Narcotic use is generally strongly condemned by allergists.

(4) Iodides — In the office or home, sodium iodide, an amule containing 2 grams dissolved in 10 c.c. of diluent, is given intravenously. This aids in loosening thick mucus in the bronchial tubes. Potassium iodide, by mouth, in the form of Lugol’s solution can be given in dosages of 10 drops in water, milk or fruit juice 3 times a day. A useful prescription is the following:

- Apomorphine HCl. 0.13 grams (2 grains)
- Potassium iodide (saturated solution) 20 c.c. (5 drams)
- Syrup of cherry to make 1 to 20 c.c. (4 oz.)
- Sig.: 1 teaspoonful, 4 times a day.

Prantal, an anti-cholingergic drug, can be used to some effect, in some persons, but has the disadvantage of thickening secretions. In children ipecac, by mouth, 1 dram every hour, until vomiting occurs. This may aid in expectorating thick clogs that otherwise would not be removed from the bronchioles.

A word about ACTH and cortisone. These steroids should be used rarely, if ever, in the treatment of bronchial asthma at home. They do
not cure the condition, and only add to the expense and may produce serious side effects if continued over a long period of time. If status asthmaticus occurs, and the usually successful methods of therapy fail, these people should be hospitalized and, at this time, ACTH and/or cortisone may be life-saving. This can be given only safely in the hospital, parenterally, where observance can be continued. There are two times when these hormones may be of some use otherwise —

1. To shrink nasal polyps. Some allergy clinics have reduced their polypectomies to almost zero. Repeated short courses of ACTH or cortisone are given and the time interval and dosage determined by recurrence.

2. If a chronic asthmatic who is under treatment, is to be skin tested, all medications are stopped because these may influence the results of the tests. ACTH and cortisone may substitute for a period of from 4 to 5 days to tide these patients over until the skin tests are complete. These hormones do not influence the immediate skin reactions.

ONE PLAN OF THERAPY FOR THE BRONCHIAL ASTHMATIC IN THE OFFICE

When the diagnosis is fairly secure, give 10 c.c. of aminophyline intravenously, slowly, and if no response in 15 min., give 0.3 c.c. of epinephrine 1:1,000 plus 0.5 c.c. of benadryl, subcutaneously, in the lower portion of the upper arm. This may give the necessary relief and, if it is so desired, sus-phrine 0.4 c.c., or ephedrine in oil 1 c.c., can be given at the same time and repeated in 8 to 12 hours, for prolonged action. If fine rales and fever are noted, broad spectrum antibiotics are given. If the sputum is thick, sodium iodide, 10 c.c. ampule containing 2 grams can be given intravenously in the same needle that aminophyline had been administered, without removing from the vein. To avert and treat milder attacks, ephedrine, a sedative of one's own selection and aminophyline, are used.

To reiterate, one of the most effective ways for a patient to give himself aminophyline is by dissolving 4 or 5 tablets of aminophyline 0.1 gram (1 1/2 grains) in approximately 1 oz. of water and administering in the rectum through a 14 to 16 gauge catheter by the use of a small rubber syringe. This does not cause pain in the rectum, and may add many nights sleep which otherwise would not have been forthcoming for an ordinarily uncomfortable patient.

Continued on page 49
DIVERTICULA, DIVERTICULOSIS, AND DIVERTICULITIS
(The Diagnosis and Treatment of Colonic Diverticula, Particularly Following Inflammatory Invasion)
MARTIN S. KLECKNER, M.D., F.A.C.S. F.A.P.S.

As early as the 18th Century, diverticular herniations were mentioned in the literature, but in 1907, W. J. Mayo, Wilson and Giffin presented the first group of cases demonstrating pathological changes following inflammatory onset in colonic diverticula. Beginning in 1914, but more accurately portrayed by Rankin and Brown in 1930, roentgen and barium studies (later termed double contrast barium air enemas) demonstrated the incidence of colonic diverticula in six percent of nearly 25,000 cases. About equally distributed between both sexes, diverticula may be found rarely in the oesophagus, stomach, small intestine, and the bladder. They are more commonly noted in the large bowel and especially in the sigmoidal and recto-sigmoidal areas.

The diverticulum or diverticula (one or more) may be embryologic or acquired. The embryologic type is perfectly seen in Meckel's Diverticulum and is found in about two percent of all autopsies. It results from incomplete obliteration of the vitelline duct and, when present, is located about 20 inches proximal to the ileo-cecal junction. The acquired type, which usually consists of a mucosal and peritoneal covering, are outpouchings or herniations from the intestinal wall forming a demonstrable sac of varying centimetric size. Diverticula are best seen following laparotomy but are usually noted prior to and after proper interpretation following the use of the barium contrast enema. The presence of many of these diverticula (non-inflammatory) has been labeled diverticulosis. Diverticula (acquired so-called) are approximately present in 10 percent of individuals over 50 years of age (100:1000). Of this group, which represents the average human, fully 12 to 15 percent may develop inflammatory symptoms, (diverticulitis — 15 percent of 100 = 15) of which (¾ of 15 = 4) will require surgery when abscess, rupture, obstruction, fistulous formation, etc. appear. Therefore out of 1000 individuals over 50 years of age, four or .4 of one percent will require help from the surgeon. Because all coats of the bowel are present in some diverticula, they have been termed “true” types by Bockus, whereas the more commonly encountered so-called “false” type is minus the muscular casing. Their location in the large bowel or in any hollow organ (most common in the fifth and sixth decade) are usually near the points of entry and exits of the blood vessels. These seem to be “weak points” in the wall of the intestine. We must also realize that some congenital weakness of the intestinal musculature may be primary but when combined with increased intestinal pressure,
these hernial protrusions might easily make their appearance and progress in size. I am of the opinion that diverticular formation is a sort of degenerative condition caused by the lessening of muscle tone in the middle aged groups, thus permitting small mucosal herniations to occur between the muscle fibers near the "weak points" in the wall of the colon.

Not infrequently, colonic diverticula are found in members of a family, so that the hereditary factor may play a determining point as a congenital weakness in the intestinal musculature. While 10 percent of individuals over 50 years of age will have a diverticulum present in their intestinal tract, fully five percent of all individuals have more than one diverticulum present or have what is known as "diverticulosis" which, in itself, is a benign process, adequately handled medically by a bland or low residue diet, the moderate use of mineral oil and occasionally belladonna and phenobarbital medication if slight intestinal discomfort exists. When inflammatory changes occur in any of these diverticula or a diverticulum (such as Meckel's), it loses its benign identity and enters the realm of the surgeon. At such times symptomatology varies according to the stage of the inflammatory process. In acute diverticulitis, a cramp-like pain in the left lower abdomen may be associated with constipation more commonly than a diarrhea, together with tenderness and a possible palpable mass in this region. A slight fever and a moderate leucocytosis is frequently present. The more severe the condition, the greater the above symptomatology and with obstruction or early abscess formation,—nausea and vomiting may be added reactions. This has sometimes been called a "left-sided appendicitis."

It must be mentioned that in 20 percent of cases of diverticulitis there is some bleeding from the rectum which may be bright red, very marked at times, and may require hospitalization and surgery. After careful history and physical examination, each case should have a thorough proctologic study. While diverticula are only occasionally seen by the experienced endoscopist, much valuable information is obtained in these scopings, such as the degree of the inflammatory process, contracture of the lumen, and the possible ruling out of malignancy. Should carcinoma be suspected, biopsy specimens from such areas may be obtained for further pathologic study. It should be mentioned that it is oftentimes very difficult to decide if malignancy is complicating diverticulitis or not, even after laparotomy and palpation of the mass with the gloved hands. It is estimated that at least four percent of all cases of diverticulitis develop into cancer so that in the absence of pus, and after abdominal exploration and when more or less obstruction is present, resection and anastomosis of the involved area is advisable, rather than applying some palliative procedure such as
colostomy or cecostomy. We know that 69 percent of colon malignancies are located in the terminal six inches of the large bowel (thereby including the anus, rectum, and recto-sigmoidal junction) so that the trained gloved finger should locate such growths and particularly so when aided by the sigmoidoscope. Interestingly enough, certain factors such as change in bowel habit, rectal bleeding, and dull pain in the left lower quadrant of the abdomen are prominent symptoms in both colonic diverticulitis and carcinoma of the left colon. Proctologic examination and barium enema films (oftimes repeated) are frequently necessary in order to make a possible differential diagnosis. When carcinoma cannot be excluded from the associated diverticulitis, then exploratory operation should promptly be done. Practically all of these conditions are noted in patients over 40 years of age.

There should be no difficulty distinguishing diverticular disease from chronic ulcerative colitis, because of the very typical picture seen through the sigmoidoscope and roentgen observations. Complicating diverticulitis, are perforations with abscess, and fistulous formation which may result between the inflamed sigmoidal area and the adjacent viscera, usually the small bowel, bladder and vagina. In abscess the flow of pus may empty into the hollow viscera or require drainage by prompt surgery. The extent of the active inflammatory invasion prohibits extensive surgery, and resection should never be attempted under such circumstances, but after subsidence has occurred.

The prognosis of uncomplicated diverticulosis is very good, but in 10 to 20 percent of these cases careful medical management will be required because of inflammatory invasion. It is our belief that medical management has been satisfactory in two-thirds of all cases of diverticulitis. It is rather difficult to give accurately the mortality rate of radical operations on diverticulitis and advanced types with complications, because so much depends on the skill and experience of the surgeon, together with the degree and extensiveness of the involved inflammatory zone. Mortality should be less than five percent but with the aid of the modern chemo-therapy and the proper use of the antibiotics, better results can be expected. Earlier diagnosis, the thorough interpretation of findings through the full use of the lighted sigmoidoscope and the comparative barium films by experienced individuals together with the well planned medical and surgical management by general practitioner-proctologist (surgeon) should bring us our best results.

Summarizing briefly, let me emphasize the need of a careful history and physical examination in all cases and remember that the services of the pathologist, proctologist and roentgenologist are vitally necessary to obtain early diagnosis and most effective treatment.
ESSENTIAL HYPERTENSION
MORTON I. SILVERMAN, M.D.

In this day of medical miracles one disease state continues to be elusive. The exact etiology of essential hypertension and therefore its exact treatment continue to mystify the medical world. On the basis of present evidence the following pathogenetic and etiologic theory is offered.

Evidently episodes of stress and corticohypothalamic imbalance activate a chain of pathophysiologic events which are at first intermittent but eventually become continuous. An increased secretion of renin and other renal vasoactive substances results from renal hemodynamic changes produced by increased neurogenic renal vasoconstriction and possibly from the increased innervation of the long postulated secretory nerve fibers to the tubule cells of the renal cortex. Simultaneously, there may be a decreased secretion of a renal blood pressure regulating hormone antagonistic to renin. In addition to exerting a pressor effect via angiotonin formation, renin stimulates the anterior pituitary to produce increased corticotropin and somatotropin which stimulate the adrenal cortex to secrete more steroids one of which has a pronounced pressor effect and minimal effects on carbohydrate and salt metabolism. This steroid also acts on the kidney to increase secretion of renin and other renal pressor substances. This mechanism after a number of episodes of activation becomes self-sustaining as a result of an alteration in the metabolism of the renal tubule cells responsible for secretion of renin and other vasoactive substances.

Although the etiology of essential hypertension remains obscure, any rational approach to an investigation of severe hypertension must of necessity include tests that would rule out remediable hypertension. Hypertension that is secondary to such disease states as glomerulonephritis, pyelonephritis, renal anomalies, adrenal cortical tumors, pheochromocytoma, coarctation of the aorta, and Kimmel-Stiehl Wilson Disease, must be determined by appropriate investigative procedures. It should be emphasized that in children below 15 years of age with hypertension, organic disease is generally present and one of the above conditions is likely to be present.

The investigation of the individual patient can logically fall into the following categories:

I. HISTORY (symptoms; past renal disease; family history).
II. CLINICAL EXAMINATION of the patient.
III. ESTIMATION OF RENAL FUNCTION
   1. Urinalysis
2. Concentration or dilution tests
3. B.U.N. and N.P.N.
4. Urea Clearance

IV. HEART AND ITS STATUS
1. X-ray or fluoroscopy
2. Electrocardiogram

V. TESTS for PHEOCHROMOCYTOMA
1. Urinary Assay for Pressor Amines
2. Benzodioxane test
3. Regitine test

VI. INTRAVENOUS UROGRAPHY — possibly followed by full urologic investigation.

VII. INVESTIGATION of the HYPERTENSION
1. Daily blood pressure record
2. Sodium amytal test
3. Cold pressor test
4. Trial of hypotensive drugs

VIII. FINAL DECISION AS TO CAUSE AND TREATMENT.

The diagnosis of true hypertension rests upon the finding of (a) a diastolic pressure over 110 mm.; (b) changes in the state of the retinal arteries (abnormal caliber and shininess, tortuosity, irregularity, A-V nicking, hemorrhages and exudates); (c) size of the heart (general cardiac enlargement or left ventricular hypertrophy); (d) electrocardiographic changes; and (e) family history, which can help exonerate or indict the patient.

The clinical types of hypertension may be divided into three main groups:

I. STATIONARY OR BENIGN — where repeated blood pressures are elevated and stay much the same (e.g. 200/120). The retinal arteries may show some changes. The heart size is top normal or slightly enlarged. The electrocardiogram may show T-wave flattening and/or increased height of the R-waves over the left ventricle. These patients may have no symptoms or they may have early symptoms.

II. SLOWLY PROGRESSIVE — where the blood pressure after a long stationary period may increase slowly over one to two years. The heart may increase in size and the electrocardiogram may show increasing left ventricular hypertrophy or strain.

III. ACUTELY PROGRESSIVE OR MALIGNANT — These may be further subdivided into (a) the young individual with early visual complaints, high diastolic pressure, retinitis, papilloedema, and renal failure; (b) the sudden acceleration of a slowly progressive hypertension where similar changes are seen.
The treatment of severe hypertension may be divided into two groups:

I. METHODS OTHER THAN DRUGS:

A. Surgical Sympathectomy — which is now largely out of vogue. A few years ago it had wide acceptance due largely to the inadequacy of medical treatment. However, its indiscriminate use has led to its falling into disrepute. There will probably be an indication for its use in selected cases such as the young patient with malignant hypertension who has good renal and cardiac function or the patient with benign hypertension in whom the disease is advancing toward the malignant phase or who is developing early heart failure.

B. Low Salt Diets — In 1904 Ambard and Beaujard showed that severe salt restriction led to a fall of blood pressure in hypertensives. In 1944 the Kempner Rice Diet came into vogue and its effectiveness here is now thought to have been due to the low sodium content (6 mEq./liter). Moderate salt restriction is probably beneficial to most patients with hypertension but severe restriction is relatively hard to maintain.

C. Adrenalectomy — has recently been performed in many patients either alone or in combination with bilateral thoracolumbar sympathectomy. The traumatizing effect of the operation and the difficulty of maintaining the patient after the imposition of the severe physiologic imbalances caused by this procedure has seriously impaired its usefulness as a routine procedure.

II. DRUG THERAPY OF HYPERTENSION:

The indications for drug therapy in essential hypertension may be considered as applying to three groups of individuals —

A. Those in whom the disease is likely to be disabling or will cause early death (papilloedema, retinal hemorrhages, exudates and edema of the retina, heart failure, paroxysmal nocturnal dyspnoea, dyspnoea on exertion, cardiac enlargement, or attacks of hypertensive encephalopathy.)

B. Those with symptoms due to hypertension, and those in whom progressive deterioration toward the first group can be expected (severe headache, vertigo, males as a group because of a worse prognosis, and those with a high diastolic pressure).

C. Not indicated in patients with moderate elevation in blood pressure, (particularly elderly females, and those with minimal or no retinal changes or cardiorenal signs or symptoms).
The physiologic effects of drug therapy that are often seen include the relief of congestive heart failure or left ventricular failure often without digitalis or diuretics or a salt free diet, reduction of heart size, improvement in the electrocardiogram, decrease in headaches, decrease or disappearance of attacks of encephalopathy. Improvement in renal function is rare. Smirk, Hammer-smith, Schroeder and Wilkins all have shown that an important extension of life in patients with malignant hypertension can be effected by the use of hypotensive drugs or combinations thereof.

The drugs that are currently enjoying the greatest popularity are listed in Table 1. It should be stated that the ideal drug or drugs are those which cause a fall in blood pressure to normal or near-normal levels without the occurrence of dangerous or intolerable side effects. Of these drugs four will be briefly mentioned:

<table>
<thead>
<tr>
<th>DRUG</th>
<th>SITE OF ACTION</th>
<th>BLOCK</th>
<th>MODE OF ADMIN</th>
<th>DOSAGE</th>
<th>MAJOR SIDE REACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barbiturates</td>
<td>Cerebral Cortex (Central symp. centers)</td>
<td>Symp. ++ para. ±</td>
<td>Oral</td>
<td>15-30 mgm qid. 0.25-5 mgm bid. or tid.</td>
<td>Somnolence, resp. depression, etc.</td>
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<tr>
<td>Rauwolfia, Serp. Bromides &amp; other Hypnotics</td>
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<td></td>
<td>Parent.</td>
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<tr>
<td>Veratrum Alkaloids (Protoveratrine, Veratrin, Verizid)</td>
<td>Hypothalmic, Reflexes bradyard. &amp; vasodil. thru excited areas</td>
<td>Symp. ++ para. ±</td>
<td>Oral</td>
<td>0.1-0.5 mgm tid.</td>
<td>Nausea, vomiting, possibly cardiogenic.</td>
</tr>
<tr>
<td>Comb. of Ergocornine, ergokryptine, &amp; ergoryctor Hydrogentaid Ergot (Hydrgesine)</td>
<td>Hypothalmic</td>
<td>Symp. ++ para. 0</td>
<td>i.v.</td>
<td>0.3 mgm bid. active orally.</td>
<td>Postural Hypotension, nasal congestion, nausea, smooth muscle spasm.</td>
</tr>
<tr>
<td>Pentapyrolidinium</td>
<td>Autonomic Ganglia</td>
<td>Symp. ++ para. ±</td>
<td>i.v.</td>
<td>40 mgm oral to early post. Hypotenison side effects.</td>
<td>Paralytic ileus.</td>
</tr>
<tr>
<td>Nitrates</td>
<td>Smooth muscle of Arterioles</td>
<td>Symp. ± para. ±</td>
<td>Oral</td>
<td>Sodium, Nit. 60 mgm. tid.</td>
<td>Headache and Collapse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhaled, propranolol</td>
<td></td>
<td>Anal., excreted pro.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Smooth muscle sublingual, or nas.</td>
<td></td>
<td>Nitroglycerin pro.</td>
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<td>Muriatic Hex.</td>
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<td>30-60 mgm tid.</td>
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</table>
1. Veratrum Alkaloids — These are powerful hypotensive agents which act on the hypothalamus and reflexly cause bradycardia and vasodilatation through the carotid sinus. The great drawback to this group of medications is that the emetic dose approaches the therapeutic dose making meticulous control very necessary. Parenterally, however, they can cause a marked hypotensive reaction in doses of 0.1 mgm of pure alkaloid. Therefore, they could be useful in hypertensive crises.

2. Hydralazine (Apresoline) — This is a potent hypotensive drug both orally and parenterally which likewise has its site of action in the hypothalamus and also causes vasodilatation in the splanchnic and renal areas. It is effective when used alone but in some patients the effective hypotensive dose is large enough to cause severe side effects such as headache and a delayed toxic effect which consists of a Lupus-like syndrome consisting of acute polyarthritis, hepatitis, etc. The dose which has been found responsible for this has been usually in the nature of 600 to 800 mgm in 24 hours. Therefore, it is not considered advisable to use this drug by itself.

3. Reserpine (Active principle of Rauwolfia Serpentina) — This acts by central inhibition of the sympathetic nervous system. When used alone doses of 0.5–1.5 mgm daily will cause a good blood pressure fall in only 20 to 25% of patients. Large doses (above the usual clinical range) may cause good blood pressure fall but in addition may also cause such side reactions as shivering, diarrhea, flushing, sleepiness, and nasal congestion. One should avoid administration of this drug to patients with mental depression, or a past history of either depression or psychotic episodes. Alone it is not effective in malignant hypertension or hypertensive heart failure.

4. Methonium Compounds — Of these the two that have been most extensively used are: (1) Hexamethonium and (2) Pentapyrrolidinium (Pentolinium tartrate). These approach closest to the goal of producing the much sought-after medical sympathectomy. The first of these drugs has lost favor due to its propensity for side-reactions (sudden hypotensive episodes). The latter can safely reduce blood pressure to normal in the upright posture in almost all hypertensives and acts by blockade of sympathetic ganglia. Of the drugs used alone it is the treatment of choice in severe hypertension.
COMBINATIONS OF DRUGS

Experience has proven that combinations of two or more hypotensive drugs are often better than a single drug because of the fact that a synergistic or a combined hypotensive effect, which is greater than that of each drug singly, is attained, and the fact that smaller doses of each can be used when used in combination leads to a reduction of the side-effects of each.

Some of the various combinations of drugs that have been advocated are:

1. Hexamethonium plus Hydralazine.
2. Reserpine plus Veratrum Alkaloids.
3. Reserpine plus Hydralazine.
4. Reserpine plus Pentolinium Tartrate.

Of these combinations the latter two are at the present time considered most useful. The method of choice that most authors agree on is the introduction of Reserpine alone in doses of 0.5 mgm t.i.d. for 14 days. This will produce an effective fall in blood pressure in 20 to 25% of patients. In those in whom this is not effective Hydralazine may be exhibited in doses starting with 10 mgm t.i.d. and if need be gradually working this dose up to 50 mgm q.i.d. This will be effective in most cases of benign and early malignant hypertension. It is not recommended that the dose of Hydralazine exceed 200 mgm in 24 hours. If this is ineffective Pentolinium Tartrate may be used in place of Hydralazine, maintaining the use of Reserpine. It is recommended that Pentolinium be given in an initial dose of 20 mgm with increments of 20 mgm until the titration dose is achieved (the point of slight giddiness in the upright posture). It is recommended that Pentolinium be given b.i.d. at first (A.M. and P.M.) and 30 minutes before the meal. When the effect is good the addition of a smaller dose at 2 or 3 P.M. will obviate the possibility of a severe hypotensive reaction. When the point of slight giddiness is reached it is considered clinically correct to drop the dose down slightly to avoid subjective complaints on the part of the patient.

CONCLUSION

The pathophysiologic events which initiate and maintain Essential Hypertension, the investigation of the patient with hypertension, the clinical types of hypertension, and the treatment of severe hypertension
are discussed. It is concluded that the surgical treatment of hypertension has been relegated to a comparatively obscure position, and has largely been replaced, except for selected cases, by a newer and more effective attack through drug therapy. It is further concluded that combinations of hypotensive drugs are more effective than any single agent in use at the present time, and that of these the most effective are Reserpine plus Hydralazine, and Reserpine plus Pentolinium Tartrate.

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**THE HOME AND OFFICE MANAGEMENT OF BRONCHIAL ASTHMA (Continued)**

**SUMMARY**

Some of the clinical aspects, differential diagnoses, sputum characteristics, and etiologic consideration are presented, together with preventives and specific measures, as well as a superficial outline of a method of hyposensitization. A compilation of the presently used and proved therapeutic agent, as well as a general plan for handling a patient suffering with bronchial asthma in the office, is discussed. The role of ACTH and cortisone is also mentioned.

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( 49 )
A CONTRIBUTION ON THE PATHOLOGY OF THE MAXILLARY SINUS

KERMIT K. KISTLER, M.D.

Since the number of cases of tuberculosis and malignant tumors of the maxillary sinuses encountered is very small, the report of the following two cases may prove of interest.

CASE I.

Thirty year old white woman. On April 7, 1946 the patient complained of severe pain in the left jaw. Four teeth were removed by a dentist. There was no improvement. The patient was referred to Harlem Eye and Ear Hospital and the diagnosis of a maxillary empyema was established. Frequent antrum lavages showed a great amount of pus. Chemotherapy and antibiotics were instituted.

As there was no improvement, the patient was admitted to the Harlem Eye and Ear Hospital on April 24, 1946. Lungs and heart showed negative findings under general examination. Blood count and urine examination were normal. X-ray examination of the sinus showed the air content of the left maxillary, ethmoid and frontal sinus highly diminished, whereas the air content of the right maxillary sinus was slightly diminished. On April 25, 1946, an antrum lavage of the left side was done.

Immediately following this a Caldwell Luc operation was performed. The cavity was filled with abundant fetid pus, the mucous membrane was slightly thickened, reddened and partly sprinkled with yellow and white dots. The bone seemed not to be affected.

The microscopic examination revealed that the mucosa was changed into granulation tissue, infiltrated with lymphocytes. The tissue contained several sharply demarcated areas of necrosis. In the tissue there were few Langhans giant cells. The epithelium was completely destroyed and no glands were visible. Repeated examinations of the pus did not show any acid fast bacilli. Culture was negative. Careful examination of the introitus nasi and the regional glands revealed no pathological changes. X-ray examination of the lungs showed a few small calcified glands in the hilus. The post-operative course was uneventful and the patient was referred to a chest clinic.

Summary:

In this case we are concerned with a thirty year old woman who suffered from acute empyema of the maxillary sinus. We decided to
operate because of the continuous low temperature and the presence of fetid pus, inspite of frequent lavages, application of chemotherapy and antibiotics.

We found the mucous membrane thickened, red, pale and sprinkled with white and yellow dots. The microscopic examination revealed the presence of granulation tissue which appeared to be tuberculous although no Koch bacilli could be found. Repeated examination of the patient failed to reveal any active tuberculous process in any other part of the body.

This case presents a haemotogenous infection which is far more rare than any infection extending either from a tuberculous process of the external nose or from a specific ostitis of the maxillary bone. Among the tuberculous diseases, tuberculosisis of the sinuses is exceptionally rare particularly tuberculosis of the mucous membrane of the maxillary sinus. While many authors consider the clinical determination of a primary tuberculosis of the nose hardly possible, other authors believe that the term primary, as far as these cases are concerned, means that other tuberculous foci can not be proved by means of clinical and laboratory methods. In order to exclude other tuberculous foci with absolute certainty, confirmation by autopsy is necessary. The cases of so called primary tuberculosis, as described in the literature, frequently do not stand criticism and in many cases of primary tuberculosis of the sinus, one actually has to deal with a haemotogenous infection in generalized tuberculosis or extension of a tuberculous process from neighboring organs.

CASE 2.

The patient, a 21 year old woman, complained of having pain in the upper left jaw with swelling of the left cheek of four months duration. Examination by her dentist proved negative. Her dentist referred the patient to see an Ear, Nose and Throat specialist.

Findings: Swelling of the left cheek. Negative findings on anterior and posterior rhinoscopy. X-ray examination revealed: Sinuses: Moderate degree of opacity of the left antrum. Sphenoids normal. We are unable to determine the reason for the opacity of the left antrum. Negative however for empyema. X-ray of the lungs was normal. Antrum lavage left showed little fetid pus and a few tissue flakes.

The patient was admitted to the Allentown Hospital, and on August 11, 1948 a Caldwell-Luc operation was performed on the left side. Anterior wall was found to be completely destroyed. The maxillary
sinus was completely filled with a tumor mass. The tumor destroyed the medial wall, invaded the floor, partly destroyed the infra orbital plate and the posterior wall. Careful but extensive removal of the tumor masses was done. Control of hemorrhage.

Microscopic examination as follows: Spindle cell sarcoma.

After treatment: X-ray

Prognosis: About one year ago the patient again came into my office with a slight swelling and pain over the second left upper molar tooth. She was sent to a dentist and had the tooth extracted and root socket curettage performed. Microscopic examination showed spindle cell sarcoma. A course of X-ray treatment was again started. Lungs and other examinations at this time were negative. The second case was very suspicious of a malignant tumor, as the walls of the maxillary cavity were protruding. The antrum needle penetrated the wall without any resistance and the return fluid showed a very fetid pus with necrotic and bloody tissue particles. Our suspicion was confirmed during the operation. We were fortunate that the tumor, although overstepping the boundaries of the maxilla, did not invade the base of the skull and that there were no regional glands or distant metastasis. In addition to surgery, we decided that the most effective treatment would be radiation.

Summary:

We have to deal with a tumor belonging to the lower group, which appears to originate from within the alveolus of the upper jaw. Extensive growths are often symptomless until the whole jaw has been infiltrated or the antrum filled with a mass of malignant tissue. It is generally accepted that the treatment of tumors in the lower group is hopeful, in contradiction of treatment of tumors in the upper group which originate from the same areas as the nasal sinuses.