be made large, between 3.65 and 4 mm. in diameter, and of spindle shape with long, sloping shoulders. If a stone be present its approximate location below the kidney can be read on the wax rings. If the symptoms have been due to stricture or stone, the large wax bulb will have a decided hang on its withdrawal, and by grasping the catheter at the external urethral orifice with the thumb and finger and then drawing the bulb through the obstruction area and out, one can measure from the proximal shoulder of the wax bulb to the thumb and finger and find the distance of the obstruction above the external urethral orifice. Allowing 5 cm. for the urethra and trigonum, one arrives at the location of the lesion above the bladder.

The use of the wax-tipped catheter to determine whether a given x-ray shadow is cast by an intra-ureteral calculus is much simpler in females with the Kelly endoscope than in males, or for those who use the Nitze type of cystoscope for work on both sexes. Harris[9, 10] and others have devised means for the use of the waxed catheter through the Nitze type of cystoscope. Fortunately, we may arrive at the same differential diagnosis through the use of the x-ray with the previous introduction of the ureteral catheter with retained metal stylet or with the shadowgraph fluid, or of the shadowgraph catheter or sound.[11]

Even with these accessory methods of diagnosis there is opportunity for error. If the skiagraph catheter and the stone shadow are quite separate we know we are dealing with an extra-ureteral body, but if the two shadows are in juxtaposition or apparently superimposed, we dare not decide the diagnosis until we have used the wax-tipped catheter or obtained another x-ray picture at a different angle or have taken a stereoscopic view.[12]

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THE SIGNIFICANCE OF UROGENITAL DISORDERS IN THE GENERAL DIAGNOSTIC STUDY OF WOMEN*

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A survey of present-day tendencies in medical education, in hospital organization and in the therapeutic application of medicine and surgery, clearly indicates that we have entered upon a new clinical era in the history of our profession. Scarcely more than a decade ago few of our medical schools could boast of as many as a half-dozen clinical professors; a medical student must needs traverse the maze of the entire curriculum to gain the coveted doctor's degree; hospital construction and organization provided adequately for only several of the greater clinical subdivisions, and the value to the patient of efficient co-ordination of even these had not been discoverably appreciated. But what a change has been wrought within a dozen years! Under certain wise restrictions and through the aid of judicious counsel, the medical student may now reach his goal over any one of a number of elective routes; the policies of governing boards, both in the matter of faculty additions and the business of material hospital equipment, are subject to and deserve stricture where they fail to embody the progressive spirit of the times and to supply the demand for new clinical units as the ever-multiplying need of such be-

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comes apparent. And just as the ancient and honorable custom of consultations between practitioners of approximately equal rank and training became largely supplanted in our centers of population, at least, by a growing demand for the more efficient services of the consultant specialist, men of wider experience and superior skill in a limited field, so, in turn, we are now witnessing another interesting and significant change in the method of clinical adaptation. The multiplication and development of medical and surgical specialties have progressed with such amazing rapidity and the resulting contributions to scientific knowledge have reached such staggering proportions that even the greatest minds among us find themselves hopelessly unable to grasp and comprehend them all.

We are confronted, therefore, with the interesting fact that none of us is competent any longer to give the best professional advice to an individual patient, except within a relatively narrow clinical domain. Such designations as "general surgeon," "general internist" or "general diagnostician" are today misnomers, for no such individuals exist, if we mean by these phrases one equally competent in all subdivisions of surgery or internal medicine, as the case may be. These changed conditions have inaugurated a new clinical era in that they already are being met by the profession in an altogether intelligent and satisfactory manner by the substitution of multiple for simple consultations. It is becoming generally recognized now, both by the laity and the profession, that in all maladies of an obscure or even serious nature the services not of one or two but of a coterie of highly trained specialists are required, if the individual patient is to obtain the best that modern medical science offers in diagnosis and therapy. This group idea is the logical and inevitable evolutionary product from an age of intensive specialization, and it has come to stay.

It seems to me, therefore, fundamentally important that the profession should be kept fully informed regarding the significance of the disorders encountered in the various special domains, particularly with reference to their disturbing influence upon the proper functioning of the organism as a whole, in order that wise judgment may be exercised in the matter of choosing consultants and of rendering efficient service to the individual patient. To this end it is my purpose in this communication to show that urogenital disorders in women are so prevalent nowadays and their pernicious influence upon the female organism as a whole is so real and so profound that a careful examination by a competent gynecologist can not with impunity often be omitted from any general diagnostic study of a woman that purports to be reasonably thorough and complete. The space at my disposal, however, will permit me to discuss briefly only a few of the many groups of abnormalities encountered by the gynecologist which might be presented in support of my thesis.

THE PRE-ADOLESCENT PERIOD

Among the various disorders of the genital apparatus in the female commonly met with before puberty, physicians would do well to keep two conspicuously in mind. The first of these is gonorrhea. It does not appear to be generally appreciated by the profession that this disease is fully as contagious among female children as is measles or scarlet fever. Not uncommonly several children in one family between the ages of six months and twelve years are found to be suffering with it in its most virulent form, and numerous instances are on record of an epidemic of it having swept through an entire female children's ward or orphanage within a week or ten days. Traced to their source, the overwhelming majority of cases are found to have been contracted from the toilet seats of public schools or other institutions, or from bath tubs, towels or the hands of attendants which are contaminated by gonococci. The importance of recognizing this disease as soon as the symptoms of vulval irritation appear can not be exaggerated. Its proper treatment usually requires a two-stage therapy, both of which require tact, skill and persistent effort. The first stage is occupied in gaining the confidence and co-operation of these little patients, who uniformly have been repeatedly terrified, not to say persecuted, by the altogether senseless procedure—unfortunately

often advised by physicians—of having been forcibly held while a pseudo-vaginal douche was administered. The effective use of an antiseptic vaginal douche in a screaming, struggling child is manifestly impossible and gentle bathing of the external genitals will remove the purulent discharge from the vulva just as thoroughly and with far less insult to the nervous system of both mother and child. The curative therapy begins in the second stage when, after having gained the child's confidence, the knee-chest posture is made use of to effect a ballooning of the vagina under atmospheric pressure. The vaginal introitus is rendered less sensitive by the application for a few moments of a cotton pledget saturated with 4 per cent. cocaine; a soft rubber catheter is then gently introduced, and a thoroughly satisfactory irrigation with a warm antiseptic solution is given. Oftentimes, too, a Kelly cystoscope is introduced and through it a thorough application of silver nitrate to the cervix is easily and satisfactorily accomplished.

A second genital disorder commonly encountered in female children and capable of producing disturbances of a most serious character is that of an adherent prepuce with an accumulated mass of incarcerated smegma closely packed about the clitoris. For let it be remembered that this organ is a highly sensitive structure composed of erectile tissue and richly supplied with nerve fibres, and that when it is subjected to the constant mechanical irritation just described a vicious circle of immeasurable significance from a neurological standpoint is set into operation. To what extent this condition may lead to erroneous diagnosis and lamentably harmful therapeutic effort three recent cases encountered in my own practice will serve to illustrate. All three of these patients belonged to families of affluence and high social position. One of them, a little girl eleven years of age, had grown up from infancy annoyed and humiliated by the distressing habit of nightly bedwetting. She had been perennially dieted, drugged, restricted with regard to fluid intake and aroused at intervals during the night to void, all of which measures served only to foster a nervous, irritable, unattractive temperament and nearly made a wreck of her mother. Examination disclosed an unusually redundant prepuce with a mass of incarcerated smegma beneath. Circumcision terminated the nocturnal enuresis overnight and, within a week, completely transformed the temperaments of both child and mother. The two other cases were almost identical in their main features. Both were charming little girls of about ten years of age whose homes and social environment left nothing to be desired. Contrary to appearances, however, each had been adjudged an intractable masturbator. In each instance the advice of a cotorie of the most eminent pediatricians, neurologists and internists of this country had been successively sought with the result that a formidable list of polypharmacy, dietary regimes, rest cures, diversions by way of trips to fashionable health and pleasure resorts under the constant care of professional nurses, together with disciplinary educational systems, had been faithfully tried for months. The havoc thus wrought both temperamentally and nervously, as well as physically, was only too apparent to the experienced observer, while the concern, gloom and humiliation of their parents was indeed pathetic. A simple circumcision in each case, together with removal of the mass of incarcerated smegma packed about the clitoris, promptly disproved the diagnosis of habitual self-abuse and, more important still, relieved the nervous systems of these little girls of a strain severe enough to have already caused marked functional derangements.

THE POST-ADOLESCENT PERIOD

One of the commonest groups of pelvic disorders responsible, through psycho-neurotic and functional disturbances, for remotely harmful influences of sufficient degree to discount materially the efficiency of a woman is that embracing the various degrees of mechanical injury incident to childbirth. For a number of years I have been convinced and have been teaching medical students that permanent damage to the various anatomical structures, composing and adjacent to the birth canal, of sufficient degree to produce later a sequence of symptoms of vital significance

to the health and well-being of the woman, is not the exception but the rule even in normal deliveries. I want to state emphatically and unequivocally as my deliberate judgment that it is not mechanically possible for a normal size full-term child to descend through the birth canal of a normally developed woman—no matter by how experienced an obstetrician or under however ideal conditions the labor may be conducted—without leaving permanent injury of sufficient degree as not only to be later readily demonstrable, but also, in most instances, to be directly responsible for a group of symptoms which materially discount the efficiency of the woman. I am fully aware, of course, that at present such radical teaching will receive few, if any, supporters, especially when I make haste to add that I have had very meager obstetrical experience. For no fallacy is more firmly fixed in the minds both of the profession and of the laity than that obstetrical injuries constitute one of the unpardonable sins and brand the attending physician as incompetent: as witness, on the one hand, the resentment depicted in the face of a woman when, after a pelvic examination, she is informed that she was injured in childbirth; or, on the other, the occasional echo from by-gone days still heard at the meetings of some county medical societies under the modest caption of "One Thousand Deliveries Without a Tear."

The permanent damage to which I refer has to do not with the superficial lacerations of the vaginal mucosa, the hymen, the fourchette or even the sphincter vaginæ and minor perineal muscles. These usually are repaired with scrupulous care at the time of delivery. But what I am trying now to emphasize is that the really significant injuries include stretching of the supporting ligaments of the uterus, lacerations of the cervix, and particularly submucous stretching and tearing of the highly important subvesical fascia and of the levator muscle fibres, together with their encasing fascial layers. The extent of the trauma to these structures usually is not apparent at the end of the puerperium, even to an experienced observer, since weeks or months must elapse before the atrophy, which inevitably follows, is complete. Later on, however, especially in multipara and as the menopause age is approached, there develops the familiar clinical syndrome indicative of a relaxed outlet with varying degrees of descensus of the pelvic viscera. And then, in turn, follows the associated picture of a nervously bankrupt woman, whose life is made miserable, whose beauty and attractiveness are gone and whose efficiency is a minus quantity by reason of a multitude of disordered organic functions. I can not emphasize too strongly that a thorough pelvic examination should occupy a prominent place in the diagnostic study of every parous woman, no matter how remote from the pelvic domain her complaints may appear to be.

During recent years the intensive study of the glands of internal secretion has given us, among other things, a much broader and more comprehensive idea of the functions of the ovaries. Formerly these organs engaged our attention chiefly with reference to their surgical removal for reasons both real and fanciful but, in the light of recent investigations, we must recognize now that they constitute one of the most important units of the entire endocrine system, since they not only govern the functions of menstruation and reproduction but, in addition, exercise a profound influence far afield from the genital domain. The perfectly co-ordinated cyclic phenomena which culminate each twenty-eight days in the fully developed corpus luteum in the ovary and the menstrual flow from the uterine mucosa furnish one of the most beautifully adjusted physiological mechanisms of the entire human organism. Furthermore, it serves to remind us of the fact that the ovaries are complex glandular organs which are continuously active in the elaboration of one or more specific internal secretions of a highly important character. The exact structure and chemical reactions of these products within the body are still imperfectly understood, but that through them the ovaries are brought into very intimate physiological interrelationship with various other endocrine units has been convincingly demonstrated. Thus, for example, it has been clearly shown that normal development of the whole group of

secondary sex characteristics which occurs at puberty is dependent upon normally functioning ovaries; so, too, we are familiar with the temporary enlargement of the thyroid gland commonly observed at puberty and during pregnancy; and with the profound and complex disturbances—partly traceable to functional derangement of the autonomic nervous system and partly psycho-neurotic in type—which are associated with the menopause; while, conversely, it is a well established fact that primary disease of the pituitary body or of the thyroid gland is frequently responsible for functional, and possibly also for developmental, anomalies of the reproductive organs. It is evident, therefore, how important it is to determine through a careful pelvic examination the condition of the ovaries as a part of the general diagnostic study of woman.

One of the commonest pelvic symptoms encountered is that of abnormal uterine bleeding, but its full significance is certainly not appreciated by the profession at large. From the best available statistics it is probable that at least twelve thousand women die annually in the United States alone from cancer of the uterus. All of us know that the only certain cure for this disease is its early and complete surgical extirpation while it is still localized.

Some years ago an analysis of the uterine cancer cases in the Gynecological Department of the Johns Hopkins Hospital showed that in over 60 per cent. of them there was a history of neglected uterine bleeding which had been going on for over six months, and during the past thirteen years, covering the period of my active participation in the work of this Clinic, I am sorry to say that I have observed no improvement in this direction. Now, when we consider that three-fourths of the patients afflicted with cancer of the cervix die within two years, and one-third of them within one year from the initial symptom, the importance of early diagnosis and prompt surgical treatment becomes apparent.

This distressing situation with reference to uterine cancer is to be attributed mainly, I believe, to two erroneous ideas which are still firmly fixed in the minds of both the profession and the laity; one is that cancer does not occur until after thirty, and the other is that any kind of abnormal uterine bleeding is to be expected at the menopause age, and, therefore, need not be regarded seriously when it occurs. Heaven only knows how many women have died from uterine cancer as a result of these two fallacies. I have seen inoperable cancer of the cervix at every period of life from the early twenties to extreme old age. Let me emphasize, therefore, that the age limits in this disease extend from puberty to death.

Unfortunately, pain is not a symptom of cancer of the uterus, text-books to the contrary notwithstanding. Rather it is to be considered one of the first signs of death, for uncomplicated cancer of the uterus produces not a twinge of pain until it has extended beyond the uterus and become incurable.

There is but one symptom to remember in connection with the early stage of this disease and that is slight abnormal uterine bleeding. That is all. Not a hemorrhage; no sudden gush of blood; nor even a continuous seepage; but only a slight staining from the little oozing that follows the breaking down of a few epithelial cells. This is the first and earliest sign of uterine cancer. Does the significance of this fact strike the reader with its full force? Would that I could herald the message abroad throughout the length and breadth of our land in such stentorian tones that every doctor and every woman within its bounds would realize and respond intelligently to the unalterable fact that *every case of abnormal uterine bleeding, however slight and at whatever age, means cancer until proven otherwise through an exhaustive examination by a competent physician!* But I have said enough to emphasize the importance of a pelvic examination as a part of the diagnostic study of every woman presenting this symptom.

One of the epoch-making advances in medical science has been the demonstration within recent years from the standpoint of pathological physiology of the baleful influence of concealed foci of infection within the human body. The pitiless spotlight of scientific investigation

has been relentlessly focused upon infected teeth, tonsils, paranasal sinuses, gall-bladders and appendices until even the most skeptical among us can not possibly longer entertain any doubt as to their causal relationship to a group of diseases formerly imperfectly understood and unsatisfactorily treated. By the same process we are beginning to realize now that pelvic infections belong in the same iniquitous category. There may be nothing particularly startling in the isolated fact that tuberculous peritonitis in women more frequently spreads from foci in the Fallopian tubes than from any other anatomical site; neither are we often so acutely sensible as might be desirable of the prolonged morbidity and remote havoc brought about by puerperal sepsis following imperfect obstetrical technique and the ever-multiplying and nefarious acts of criminal abortionists; while so accustomed had we become to hearing of the prevalence of gonorrhea and syphilis that it required nothing less than a world war and the amazing disclosures of the medical examining boards of our Army and Navy which it occasioned to arouse us from our professional lethargy and to bring home to us the undesirable fact that these venereal diseases seriously threaten the very life of our Nation, and that their eradication constitutes one of the greatest and most imperative public health problems of all ages.

Consider, then, if you please, the collective incidence today of tuberculous, of puerperal and of venereal infections of the female reproductive organs, reflect upon their unparalleled significance as foci of infection not only to the individual woman but also to her pitiable offspring and to the public health, and nothing more need be said, I am sure, to stress the importance of a specific search for these diseases as an essential part of the diagnostic study of every woman.

So intimately bound up with the diseases of the female genital system are the surgical disorders of the urinary tract that the two, of course, are inseparable. But, thanks to modern urological methods of investigation and especially to the Kelly open-air mode of cystoscopy, a complete and accurate study of the urethra and bladder, an investigation of the ureters particularly for the presence of strictures and calculus, capacity and contour details of the renal pelvis, as well as a comparative study bacteriologically, chemically and functionally of the two kidneys, all may now be accomplished with the utmost ease at a single brief examination. Bladder symptoms are almost as prevalent among women as is backache. Ureteral strictures in women we now know to be a common disorder and responsible for many useless laparotomies for supposed disease of the ovaries, appendix or gall-bladder. Urethritis, cystitis, bladder ulcers and neoplasms, pyelitis, calculus and tuberculosis of the urinary tract are always with us. So that a cystoscopic study is often the most illuminating part of a pelvic examination and, hence, must be frequently resorted to in the general diagnostic study of women.

The space at my disposal does not permit me to discuss the relationship to the female organism as a whole of the benign tumors of the uterus; of the varied neoplasms of the ovaries; of the abnormalities of pregnancy, including the ectopic cases; of the problems of sterility and sexual inequalities; of the almost constant association of pelvic diseases with surgical abnormalities of the abdominal viscera — including the appendix, the intestines, the stomach, the gall-bladder and the rest. But if I have succeeded in focusing the attention of the reader upon the prevalence, the scope and the significance of urogenital disorders, upon their injurious effects upon the health of the individual and upon the attention which they merit in every thorough general diagnostic study made of a woman, the purpose of my communication has been achieved.

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