Cancer in Hainan, China

A Supplementary Statistical Study of 451 Cases with Special Reference to Age, Anatomical Distribution, and Etiology

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It is now 20 years since a preliminary report on cancer in Hainan was published (1). Since that time several attempts have been made to prepare a subsequent report, but various circumstances made this impossible. One set of records was destroyed during the disturbances caused by communist invasions. Several times medical work in Hainan was practically stopped because of extensive banditry and general lawlessness. At other times war conditions have kept people away from the hospital.

The present report is based on records of 451 cases, and presents a fairly accurate picture of cancer in Hainan as found during recent years. Of the cases reported, 373 were seen in the American Presbyterian Hospital, Hoi How; 48 were reported from the American Presbyterian Hospital, Kachek, by Dr. S. P. Seaton and Dr. E. Morse; 30 cases were reported from the American Presbyterian Hospital, Nodoa, by Dr. H. F. Burkwall and Dr. E. Morse.

Most of the cases reported have come to operation. A serious defect in the report is the absence of record of many patients with inoperable cancers seen in outpatient clinics. Another serious defect is the inability to secure permission for autopsies in Hainan. However, more than half of the cases which have been operated on have had pathological examination of the tissues removed. This has been made possible through the courtesy of the Department of Pathology of the Peiping Union Medical College, which has been very generous in doing the work on material sent to them.

In the present study comparison is being made with the statistics reported 20 years ago. The comparison of the age groups for the two reports will be seen in Table I. It will be noted that while the incidence of malignant disease below the age of 40 is still high, the percentage of all cases reported is now 41.7 as against 50.3 per cent 20 years ago. One reason for this will probably be found in a study of Tables II and III. Table II presents the anatomical distribution as found 20 years ago. Table III shows the anatomical distribution as found in the present report and shows forms of cancer not found 20 years ago. Most of these are in the group of patients over 40 years of age. These include, among others, cancer of the cervix, stomach, ovary, eye, and nose. Cancer of the cervix, uterus, and ovary have been seen only within the past 5 years. There was a complete absence of cancer of the female genitalia in the 1919 report. The present report lists a total of 39 6.6 per cent of the total, and includes cancer of the ovary, uterus, cervix, vulva, and vagina. It is only within the past few years that gynecological cases have been coming for treatment at all, and probably more of these cases will be seen in the years to come. Few cases of uterine fibroids have been seen.

Cancer of the stomach has been observed within recent years. Pain in the region of the stomach has always been a common ailment of the Chinese here,
especially among men. Most cases were diagnosed as gastritis of one kind or another, or of ulcer; alcohol seems to play a large part in stomach distress here. However, within the past few years unmistakable cases of cancer of the stomach have been noted, all of them inoperable. This disease is undoubtedly more common than was formerly supposed.

It will be noted in Table III that the first 4 types of cancer listed, cancer of the glands of the neck, cancer of the breast, cancer of the skin, and cancer of the penis account for 300 or 66.6 per cent of the cases reported.

Cancer of the glands of the neck is the most frequent form of malignant disease, accounting for 97, or 21.51 per cent of the cases reported. In spite of forms of cancer in this report which were not observed in 1919, the percentage of cases of this form of cancer is higher than that of the 1919 report, which was 19.8 per cent.

Most of these cases are in young people; that is, in the group under 40 years of age. Most of them occur in men, practically all of whom are farmers. Many of the cases are inoperable, even for palliative operation, when first seen. Many of the cases show discrete, movable glands, with no apparent sign as to primary location other than in the neck. We now feel that except for temporary relief from pressure, not much is gained by operating upon these patients. Unfortunately, radium and high voltage x-ray therapy are not yet available for treatment of malignant conditions in Hainan.

Microscopic diagnosis of these cases is usually "lympho-endothelioma," lymphosarcoma, or metastatic carcinoma.

While the gland cancers are generally considered to be metastatic, the location of the primary tumor presents a problem in the majority of the cases. There are patients whose symptoms and findings leave no doubt as to the location of the primary growth in the upper nasopharynx, or even in the brain. On the other hand, many cases of cancer of the glands of the neck are seen, with enormously enlarged, hard, fixed masses of glands on both sides of the neck, in some cases even with ulceration, in which it is impossible to locate a primary growth.

In this report are included 2 cases of Hodgkin's disease. It is interesting that among the many cases of cancer of the glands of the neck only 2 cases of Hodgkin's disease have been seen. These examples of a rare disease in China were reported in the China Medical Journal (2).

Inquiry from several sources has indicated that cancer of the glands of the neck is not seen commonly north of Canton and Hongkong. It does not even appear to be as common in Canton and Hongkong as in Hainan.

Just why cancer of the glands of the neck should be so common in Hainan is difficult to explain. None of the observed cases have been associated with cancer of the antrum, tongue, lip, or mixed tumor of the parotid. Impossibility of securing autopsies makes detailed study of these cases impossible. That so many of these cases are young farmers, men and women, cannot be dismissed lightly. Whatever the causative factor may be, it strikes early in life. It would seem that this condition calls for special study.

Cancer of the breast has risen from 7.6 per cent in the 1919 report to 16.18 per cent in the present report. This is in line with what would be expected as more women come to the hospitals for treatment. Unfortunately, most of the cases seen are advanced, with foul ulcerations and with gross involvement of the axillary glands.

The percentage of skin cancers is still high.
attempt has been made to segregate these skin cancers into types. Cancer of the lip and eyelid have been classified separately. As in the 1919 report, most of the skin cancers are the result of previous injuries to the skin, either burns, cuts, or development on keloid formation. Although lower than the 1919 report, the percentage of skin cancer is much higher than found in America.

It will be noted that there is still a large proportion of cases of cancer of the penis. Although the present report of cancer of the penis is considerably lower than the 1919 report, the present figure, 1.26 per cent, is about 5 times the percentage found in America.

Recent observations have convinced us that phimosis is a primary etiological factor in cancer of the penis. Extreme phimosis is very common among the Hainanese, in many cases involving dense adhesions of the foreskin to the glans penis, with only a very small opening for urine to escape. Many adult cases come to the hospital for circumcision because of the irritation of the phimosis. For many years only advanced cases of cancer of the penis were seen, with complete ulceration and cauliflower growth of the glans and body of the penis, and with involvement of the inguinal glands. At that time caustics used because of venereal disease were supposed to bear a causative relation to the malignant disease of the organ.

However, the early cases seen within the past few years demonstrate the role which phimosis seems to play in these cases. No early case of cancer of the penis without phimosis has been seen. There seems to be no relation to syphilis or other venereal disease in cancer of the penis. Few of the cases show positive Kahn tests, and most of the cases are farmers from districts, far from the cities, where the incidence of venereal disease is very low.

Several cases have come to the hospital with complaint of a nodule within the phimotic foreskin. At operation there has been found an early epithelioma, confirmed by microscopic sections, on the mucous surface of the skin near but not on the glans penis. Apparently, the involvement of the glans comes from extension of this primary growth.

In general the findings in Hainan are similar to those reported by Ngai (3). Even admitting the presence of phimosis as an etiological factor in this disease, the fact that cancer of the penis occurs in such a large proportion of all cases seen, a figure far above that of other countries where phimosis is also common and also untreated, would seem to indicate that there is some additional factor which is responsible for the prevalence of this disease in Hainan. As in the case of cancer of the glands of the neck the fact that so many of these cases occur in farmers seems to be significant. Another point of interest is the fact that of the 30 cases reported from Nodoa by Dr. Burkwall and Dr. Morse, no cases of cancer of the penis are included. The series is admittedly small, but it covers a period of about 4 years, and would seem to be typical of the findings of that region. Geographically, Nodoa is on the western side of Hainan, in the hills; and racially, Nodoa is the center of numerous tribes of aboriginal and semi-aboriginal peoples, with very few Hainanese in the region.

Most of the tumors of bone were osteosarcoma. Most of the patients were seen too late for treatment, but even in the early cases amputation was refused.

In this series only 3 cases of cancer of the rectum are reported. Lymphogranuloma of the rectum with stricture is seen occasionally. Syphilis among the Hainanese is common. Rectal disease, hemorrhoids and fistula in ano, are extremely common in Hainan. Dysentery, amebic and bacillary, is also common. The relative absence of cancer of the rectum is therefore of interest.

One case of cancer of the prostate was seen, which did not come to operation. In general, enlargement of the prostate is not nearly as common as in the United States. In a few cases in old men, usually alcoholics with previous history of gonorrhea, retention of urine because of enlarged prostate has been seen.

Cancer of the esophagus has not been observed. Cancer of the larynx has not been seen, although tuberculosis of the larynx, representing the terminal stage of pulmonary tuberculosis, is very common in Hainan. Only 1 case of cancer of the lungs has been noted. In spite of the prevalence of leprosy in Hainan no case of cancer of any kind among lepers is recorded. In a personal communication, Dr. James L. Maxwell of Shanghai, who for many years did extensive work among the lepers of China states that he cannot remember having seen a case of cancer among lepers. Further information on this subject is now being gathered.

The picture of cancer in Hainan shows that 34.14 per cent of 451 cases are cancer of the glands of the neck or cancer of the penis. This figure is out of all proportion to the incidence of these 2 kinds of cancer elsewhere. Furthermore, the absence of cancer of the esophagus and larynx, and the practical absence of cancer of the rectum, prostate, and lungs, would seem to be significant. Further statistical studies will show some changes from the figures reported; and when it is possible to perform autopsies much more accurate information will be obtained.

As these variations in the statistics of cancer as found in Hainan are considered, it must be remembered that the whole incidence of diseases in Hainan differs from the incidence in other parts of the world.
For example, except for a few imported cases diphtheria is almost unknown. Scarlet fever has not been found in Hainan. Very few cases of appendicitis occur there. It is only within recent years that much typhoid fever has been seen in Hainan. In spite of the frequency of gonorrhea in men and women, surprisingly few cases of stricture or salpingitis are seen, although gonorrheal arthritis occurs. Other forms of arthritis are seen, but they are not very common when compared to this disease in America. Acute articular rheumatism is almost never observed. It should also be noted here that in spite of the frequency of syphilis, general paresis is unknown in Hainan. Most of these diseases are seen in other parts of China.

On the other hand, malaria and hookworm disease are almost universal in Hainan. Dysentery is common. There are epidemics of bubonic plague, cholera, and small pox. Leprosy and tuberculosis are common. Rickets is almost never seen. Beriberi and keratomalacia are frequently seen. Stone in the urinary bladder is very common although only 1 case of renal calculus has been diagnosed. Also, only 1 case of cancer of the bladder and no cases of cancer of the kidney have been noted.

Further variables in Hainan are the diet of the people here, and the fact that generally speaking their blood pressure is lower than for similar age groups in America. Diabetes is not seen often, and then only among well-to-do men who indulge freely in heavy eating and drinking. These men are also usually the ones who show high blood pressure. Incidentally, eclampsia is very seldom found. In a period of 2 years in which 1654 maternity cases, involving many abnormal ones, were registered in the hospital, only 1 case of eclampsia was seen.

The unusual incidence of disease in Hainan, so different from other parts of the world, makes this statistical study of cancer important. Hainan is an isolated portion of China, a large island, off the southernmost part of China, in the tropics, with geographical, anthropological, and disease conditions differing from the mainland and from many other lands. The study of masses of facts from different parts of the world, with different races, and disease conditions, and the correlation of these findings are all necessary to a broad study of cancer.

REFERENCES


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