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Original Articles

PARATYPHOID FEVER¹

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We are reporting a series of thirty-four (34) cases. They were definitely paratyphoid, as the microorganisms were isolated from the blood in most of the cases or from the visceral organs on autopsy.

TABLE 1.—Showing Different Types of Paratyphoid.

Type	No. of Cases
Paratyphoid A	21
Paratyphoid B	5
Undetermined Type	8
TOTAL	34 ^a

^a There were 4 cases that were autopsied and cultures from the visceral organs and intestines were positive for paratyphoid bacilli.

The table above, shows that paratyphoid A was the most common type in the series. According to modern nomenclature, paratyphoid A is named *S. paratyphi* and paratyphoid B. *S. schottmulleri*.

Source of Material — The histories of the majority of our cases were taken from the records of the Philippine General Hospital but there were a few other cases from the private records of the writer.

Yearly Incidence — As regards the yearly distribution of our cases: 1 case was in 1914; 1 case, in 1924; 5 cases, in 1925; 10 cases, in 1927; 2 cases, in 1928; 4 cases in 1929; 2 cases, in 1930; 2 cases, in 1931; 1 case, in 1932; 1 case, in 1933; 1 case, in 1941; 1 case, in 1945.

¹ Read at the 39th Annual Meeting of the Philippine Medical Association held May 9, 1946.

We regret that the yearly incidence was too irregular to warrant conclusions. It is also regrettable that we could find only a limited number of cases in such a long period of time, but this could not be helped because, with the confusions resulting from the war, no other available records could be found. However, judging from the past experience, we can say that paratyphoid is a relatively rare disease in the Islands as compared with typhoid fever.

We propose to follow up this study in the immediate future in the hope that, perhaps later, we may come across enough cases to make our study of the yearly incidence of the disease in the Philippines significant.

Age Incidence.—Table 2 shows the age incidence.

TABLE 2.—Showing the Age Incidence.

Age Incidence in years	No. of Cases	Percentage of Total
5—10	1	2.94
11—15	1	2.94
16—20	9	26.47
21—25	8	23.52
26—30	5	14.70
31—35	4	11.76
36—40	3	8.82
41—45	2	5.88
46—50	1	2.94
TOTAL	34	100.00

It may be seen that the ages most frequently affected were between 16 to 20 years, 26.47%; between 21 to 25 years, 23.52%; and between 26 to 30 years, 14.70%.

Sex Incidence.—Twenty-three of our cases were males; and 11 cases, females,

Clinical Type.—The types of cases in our series, were: (1) those that were mild and (2) those that were severe, depending on the seriousness of the clinical symptoms and the duration of the fever.

Our mild cases were those that showed mild symptoms, had but few complications, and the temperature was only of short duration; the severe cases, were those with marked symptoms of toxemia, serious complications, and a prolonged fever. Table 3 shows the distribution of the 34 cases of our series, according to this classification.

TABLE 3.—Showing the Clinical Types and the Duration in Days of the Fever, and their Termination.

Clinical Types	Recovered			Died			Fatality Rate %
	No. of Cases	Duration in Days	Average Duration	No. of types	Duration in Days	Average Duration	
Mild	9	125	13.88	0	0	0	0.00
Severe	16	462	28.87	6	135	22.50	37.50
TOTAL	25	587	23.48	6	135	22.50	24.00

The 3 cases discharged improved were not included in this series.

Table 3 includes 9 cases of the mild type and 22 cases of the severe form. The cases of the first type had an average duration of 13.88 days; those of the severe kind, an average duration of 28.87 days. The combined average of both types is 23.48 days.

Symptoms Observed.—In Table 4 we tried to include the symptoms observed and their relative frequency.

TABLE 4.—Showing the Relative Frequency of the Symptoms.

Symptoms	No. of Cases	Percentage of Total
Headache	27	79.41
Chills and chilliness	15	44.11
Cough	13	38.23
Body pain	11	32.35
Frequent bowel movement	8	23.52
Abdominal pain	8	23.52
Constipation	8	23.52
Nausea	6	17.64
Vomiting	6	17.64
Rose spots	5	14.70
General malaise	5	14.70
Palpable spleen	4	11.76
Chest pain	4	11.76
Dizziness	3	8.82
Difficult urination	2	5.88
Tenesmus	2	5.88
Tympanism	2	5.88
Mucoid stools	2	5.88
Pain in right iliac region	1	2.94

This table shows that the paratyphoid infections that we studied had many symptoms, the most common being: headache, 79.41%; chills and chilly sensations, 44.11%; cough, 38.23%; body pains, 32.35%; and frequent bowel movements with abdominal pains and constipation, 23.52%. Other important signs and symptoms, which we included in the table, are those that we consider of great significance regardless of frequency of occurrence. There are:

(a) *Rose Spots.*—Although rose-spots occurred only in 5 cases, we know from past experience, that this sign generally occurs in greater frequency. The trouble was rose-spots are not so noticeable among Filipinos because of their brown skin. Besides, rose-spots were not included in the routine examination of these cases, and the time-factor of their occurrence was hardly considered. The literature shows that rose-spots occur in typhoid fever as often as in 73.6% of the cases reported by Gutierrez.¹

Observations in our series showed that rose-spots appeared generally about the beginning of the second week and remained for about two to five days. Usually they appeared on the back, on the chest, and on the abdomen, and rather infrequently at the extremities. It is regrettable that no definite pronouncement can be made in our series, because most of our patients came for hospitalization too late to make it easy to look for the sign. Consequently, in our series at least, rose-spots were more frequently seen among pay patients because of earlier hospitalization, when the spots had not yet begun to fade away.

(b) *Splenic Enlargement*.—Enlargement of the spleen was observed only in four of our cases. But it might have been possible that this sign had also been overlooked, because many of the records did not even mention whether the spleen was normal or not either on palpation or percussion.

It is important that this organ be examined as a part of the routine in all examinations. Splenic enlargement was reported by the writer² in 60.2% in a group of 709 cases of Typhoid fever observed by percussion from mid-axillary downward, and 23.97% by palpation. But in this series it occurred in 11.76%.

(c) *Tympanism*.—This symptom was reported in only 5.88% of the cases in this series. Our experience, however, leads us to believe that tympanism occurs more frequently. (See Table 4)

Temperature.—The temperature curve is tested in Table 5.

TABLE 5.—Showing the Relative Frequency of Types of Temperature.

Type of Temperature	No. of Cases	Percentage of Total
High Continuous	11	32.35
Irregular	9	26.47
Low Remittent	7	20.58
High Remittent	5	14.70
High Remittent and Low Remittent	1	2.94
High continuous and High Remittent	1	2.94
T O T A L	34	100.00

In 32.35% of the cases, the fever was high and continuous, irregular in 26.47% and low remittent in 20.58%, etc. Other types of temperature curves are recorded in the table. The average duration of the fever was 23.48 days. It seems, therefore, that there is a considerable variation in the temperature in paratyphoid infections.

Pulse.—Out of the 34 cases, there were 4 or 11.76% in which the pulse rate remained below 100 beat per minute throughout the febrile period; 7 or 20.58% in which the pulse rate was over 100 beat per minute during the height of the fever; and 23 or 67.64% in which the pulse rate was irregular, fluctuating around 100 per minute.

All these cases stayed more than 7 days in their homes before they were hospitalized, and they were frequently accompanied by severe toxæmia and other serious

complications. These complications can affect the frequency of the pulse rate considerably.

TABLE 6.—Showing the Total Leucocyte Counts.

No. of Leucocytes	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000
No. of Cases	0	4	6	8	9	3	7	2	1	1

No. of Leucocytes	12,000	13,000	14,000	15,000	16,000	17,000	18,000	19,000	20,000	21,000
No. of Cases	1	0	1	1	0	0	0	2	1	2

Leucocyte Counts.—In hematology (Table 6) we record the following: As the table shows, there were low counts in most instances — in 10 cases, from 3,000 to 4,000; in 17 cases, from 5,000 to 6,000; and in 10 cases, from 7,000 to 8,000. But there were cases where the white counts were as high as 10,000 or more. In fact, in some of them, it ran as high as 21,000. All the cases that gave high counts were attended by complications in some instances by lobar pneumonia; broncho-pneumonia in a few; pyonephritis, in some; and ileocolitis in others.

Differential counts (See table 7). In some patients, more than one differential count was made, so that the record shows more blood counts than there are patients.

TABLE 7.—Showing the Differential Counts.

Differential Counts	Polymorphonuclears									Small Lymphocytes									
	30%	40%	50%	60%	70%	80%	90%	100%		5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
No. of Counts		2	7	18	15	4	0	0			7	13	9	9	4	3	1	0	0

Differential Counts	Large Lymphocytes										Mononuclears									
	1-3%	4-5%	6-7%	8-9%	10-11%	12-13%	14-15%	16-17%	18-19%	20%	1-3%	4-5%	6-7%	8-9%	10-11%	12-13%	14-15%	16-17%	18-19%	20%
No. of Counts	8	8	6	10	9	2	2	0	0	0	13	18	6	0	0	1	0	0	0	0

Differential Counts	Transitional										Eosinophiles						
	0%	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%	0%	1%	2%	3%	4%	5%
No. of Counts												35	5	1	2	1	0

Differential Counts	Basophiles				
	0%	1%	2%	3%	4%
No. of Counts	1	0	0	0	0

The most frequent polymorphonuclear counts ranged from 60% to 70%; the counts for small lymphocytes, 15% to 25%; large lymphocytes, 8% to 11%; mononuclears, 1% to 5%; eosinophiles, 0%. It is interesting that in the majority of the cases, the eosinophiles were almost always absent. Of the patients with complications and who showed very high counts, 2 cases died and were brought to the autopsy table. One of these (Case 1), a child of 5 years, was positive for paratyphoid organism by blood culture and showed dysenteric lesions in the large intestines (Flexner type) on autopsy and gross hyperplasia of the Peyer's patches in the ileum. The paratyphoid germs were recovered from the large intestines and other visceral organs. The total white counts in this particular case varied from 15,000 to 28,000 with polymorphonuclears 64% and 74% respectively. In other words, the polynuclears did not seem to increase with the marked leucocytosis.

The remaining other case, Case 2, was a male patient, 21 years of age, who died on the 35th day of the disease. Blood culture was positive for paratyphoid bacilli. The complication found on autopsy was bilateral hypostatic pneumonia. Leucocyte counts in this case oscillated between 14,600 to 20,400 and differential showed 81% and 86% polynuclears. In contrast with the findings in case 1, the polynuclears remained consistently low.

Complications.—The relative frequency of complications in our series is listed in Table 8.

TABLE 8.—Showing Relative Frequency of the Complications.

Complications	No. of cases	Percentage of Total
Toxemia, severe	11	32.35
Myocarditis, acute	9	26.47
Pneumonia, lobar	3	8.82
Bronchitis, acute	3	8.82
Nephritis, acute	2	5.88
Hemorrhage intestinal	2	5.88
Bronchopneumonia	1	2.94
Pleurisy with effusion, right side	1	2.94
Pleuritis, acute, bilateral	1	2.94
Hypostatic congestion, lungs	1	2.94
Pregnancy, interrupted	1	2.94
Pyonephritis, acute, bilateral	1	2.94
Ulcerative enteritis	1	2.94
Anemia not due to hemorrhage	1	2.94

The most common complications observed were severe toxemia and myocarditis, 32.35% and 25.47% respectively.

From all these preceding tables, perhaps we can generalize that no fixed pattern as regards symptomatology may be encountered in paratyphoid fever. There are many variations, not only as regards symptoms and clinical forms but also as to duration—

perhaps because of the influence of the virulence of the infecting microorganisms, the immunity, the constitution, the resistance, and the race of the individual, etc. The symptomatology is bound to be varied, depending on the severity of the infection and on the degree of the toxemia, which when acting, especially on important organs, are bound to produce different types of syndromes. That is why we can distinguish the toxic type, the cerebral type, the haemorrhagic type, the gastro-intestinal type, the respiratory type, etc. In fact, clinical manifestations can always be referred to the particular organs most affected.

However, irrespective of the types of symptoms and clinical manifestations, our tentative classification into (1) mild and (2) severe forms can still be regarded as practical. In fact, it would be applicable to even any of the types above enumerated. According to this classification our series may be grouped into:

(1) *Mild Cases*.—Nine patients showed mild clinical symptoms but only 2 of them showed acute bronchitis as complications. The duration of the fever was 13.88 days. All these cases recovered.

(2) *Severe Cases*.—There were 16 cases of this type. In 11 of them, there was serious toxemia (68.75%); in 9 cases, acute myocarditis (56.75%); and in 3 cases, accompanying lobar pneumonia (18.75%). The duration of the fever was 28.87 days. Six cases terminated in death—a fatality rate of 37.5%.

From these findings, we may conclude that paratyphoid cases exhibit an extensive variation in symptoms. This is as it should be; for, as Petersen³ says:

“Our school medicine today, assumes that all men are alike. Guinea pigs being alike, the 25 guinea pigs inoculated with tubercle bacilli all developed tuberculosis, so our patients are assumed to be alike and must respond to the same insults and the same remedial measures in like fashion. As a matter of fact, all men are dissimilar and the peristase, the thousand influences that play upon the human organism after the germplasm has been laid down, may either further differentiate the pre-existing dissimilarity or in some instances perhaps, act to converge individuals into respectively similar groups.

“Because we have focused our educational scheme about the infections, we have completely ignored the subject of constitutions; and only now, stimulated by the anthropologist, the endocrinologist and the psychiatrist, are we slowly retracting our steps and taking cognizance of the patient as an individual.

“But the individual, the integrated protoplasmic mass that presents for our analysis the sum total of the characteristics laid down in the germplasm and later modified (endostase and peristase) is not static, fixed, immutable. It is that individual pattern of reactivity that may be fairly well defined and remain so during the life time of the individual but within the pattern, there is constant flux, a constant biological pendulation which becomes apparent as the individual reacts in his environment.

“The medicine that we must practice, the dysfunction which presents symptoms, is most frequently not associated with gross microscopic tissue alteration but rather with molecular and ionic alteration.—the ‘Molecular Pathology’ of Schade. The end results may be in the field of gross and microscopic pathology, the clinical stages are initiated long before, and these stages are fluid, ever changing often times intangible.”

Relapses.—Relapse was observed in about 20% of our cases; i.e., 7 cases out of a total of 34 patients. In one of these instances, the patient relapsed two times, but the rest relapsed only once.

Diagnosis.—The diagnosis of Paratyphoid is not easy. Positive diagnosis is possible only when hemo-culture is positive. The presence of rose-spots and the enlargement of the spleen call for a more careful differentiation from true typhoid which can be done by blood culture. Again, persistent fever, splenic enlargement, and low or normal leucocyte counts should be differentiated mainly from malaria. Fortunately in the latter cases, we find in atabrine and quinine important agencies to help us make differential diagnosis.

Prognosis.—The prognosis will vary naturally with the severity of the infection, personal immunity, age, nature and constitution, as well as the race of the patient, presence of complication, etc. In this series, we found the prognosis very favorable in the mild cases. Not a single fatality was registered. But, in the severe types, the rate of fatality was about 37.5%; while, the general rate of fatality for the entire series, was around 24.0%. (See Table 3.)

During the time of peace in Europe, the prognosis according to Rolleston⁴ was favorable. He cited Sacquépée as observing a mortality of only 1.5% in a series of 27.25 cases; but during the years of the war, paratyphoid became more severe than itself, and such complications as intestinal haemorrhage and perforation were frequently observed.

Autopsies.—Four of the six of our fatal cases, were autopsied. Case 1, M.F., Filipino child, 5 years old, died on the 14th day of the disease. The patient had been sick for about 12 days before coming to the hospital, and death came 2 days after hospitalization. On admission, the patient was already in severe toxic condition, with frequent small bowel movements. Blood culture was positive for paratyphoid bacilli.

On autopsy, no ulcerations of the ileum was found; but the Peyer patches to within a distance of one foot from the ileo-cecal valve were congestive with hyperplastic changes. In the large intestine, the lining mucosa appeared to the naked eye markedly thickened, congested, haemorrhagic, and granular. These changes were slightly more prominent in the descending colon. No ulcers or areas of necrosis could be observed in the colon. The spleen was not enlarged. Cultures from the spleen and gall bladder were positive for paratyphoid bacilli. Cultures from the colon showed *B. paratyphosus* ad *B. dysenteriae*, Flexner type.

Case 2, C.C., Filipino, male, 25 years old. Patient died on the 16th day of the disease. Hemo-culture was positive for *B. paratyphosus*. The autopsy showed acute ulcerative enteritis, intestinal haemorrhage, and acute splenitis.

Case 3, A.L., Filipino, female, 30 years old, died on the 24th day of the illness. Blood culture was positive for *B. paratyphosus*. The autopsy showed acute pyonephritis, bilateral; acute vegetative endocarditis of the mitral valve; and ulcerative colitis, non-specific.

The pathological findings in the intestinal tract, showed that the Peyer's patches and solitary lymph nodes were not particularly prominent, and no ulcerations could be found in the ileum. Beginning at a point about the middle of the ascending colon,

however, then along the entire length of the transverse and descending colons, and as far down as the rectum, there were small superficial ulcers of variable shapes and sizes measuring from 0.50 cm. to 2 cm. in diameter.

Case 4, H.A., Filipino, male, 21 years old, died on the 35th day of the disease. Blood culture was positive for *B. paratyphosus*. The autopsy showed acute ulcerative enteritis; hypostatic pneumonia bilateral; acute nephritis; and acute splenitis.

Two of the four autopsied cases, in short, showed no intestinal ulcerations, although the Peyer's patches were hyperplastic in one of them. But the spleen was apparently not much changed. The remaining two cases showed definite intestinal ulcerations. It is unfortunate that no cultures were made from the vegetations of the heart. For it is difficult to determine what organism had caused the endocarditis.

Mixed Infections.—In our desire to give as complete a report as possible on paratyphoid, we are including cases in which the paratyphoid infection had become associated with other types of infection; i.e., cases of true and mixed infections. Rolleston⁴ reports cases of mixed infection of typhoid and paratyphoid A, and paratyphoid A and B. He also mentions cases of mixed infection of paratyphoid and dysentery. The cases which we are including here are of the later type; i.e. mixed infections of paratyphoid and dysentery, plus one case of paratyphoid A and typhoid fevers.

On the paratyphoid and dysentery cases, we have the following data:

Case 1, Paratyphoid and Dysentery, Flexner: M.F., Filipino, male, 5 years old, hospitalized with the chief complaints of fever and frequent bowel movements. The patient had been ill outside the hospital for about 12 days with continuous fever, followed later by frequent bowel movements in small amounts. For several days, the stools had been bloody and accompanied by severe abdominal pain. It was for these symptoms, that the child was brought to the hospital.

Physical examination showed normal chest and abdomen. Leucocyte counts varied from 15,200 to 28,000; but differential counts showed the following results: polynuclears, 60% to 75%; small lymphocytes, 15 to 20%; large lymphocytes, 9 to 10%; eosinophiles, 0% to 1%.

Blood culture made only once was positive for *B. paratyphosus*. The child died 2 days after admission to the hospital. The temperature was low and remittent.

Autopsy findings were: catarrhal enteritis; hyperplastic, hemorrhagic colitis; bacillary dysentery; focal necrosis of the liver.

Culture were positive for *B. paratyphosus* from the spleen and small intestines; and positive for *B. paratyphosus* and *B. dysentery* (Flexner) from the colon.

Case 2, Paratyphoid A and typhoid: M.A., Filipino, male, 20 years old, admitted to the hospital with chief complaints of fever and headache. The present illness had begun one week before hospitalization, with chills, lasting for about one hour, followed by fever and severe headache. Cough was only occasional. The chills never recurred, but fever and headache persisted.

On examination, the heart and lungs appeared normal; the abdomen was slightly tympanitic; and the spleen, slightly palpable.

Rose-spots were observed on the chest and back. Culture made from the rose-spots were positive for *B. paratyphosus*.

Lower extremities were apparently normal.

Laboratory examinations.—Blood culture was positive for *B. typhosus*.

The leucocyte counts and differential counts showed the following results:

Total Counts	6800	7000	7350	6900	8710	8200	7600	8000	7200
Polynuclears	62%	56%	60%	64%	58%	62%	66%	68%	70%
S. Lymphocytes	24%	28%	23%	26%	24%	25%	26%	24%	20%
L. Lymphocytes	8%	8%	10%	6%	10%	8%	5%	6%	6%
L. Mononuclears	6%	8%	6%	4%	7%	5%	3%	1%	4%
Eosinophiles	0	0	1%	0	0	0	1%	1%	0

LITERATURE

1. Gutierrez, P.: Typhoid Fever in the Philippines, *Phil. Jour. Sci.*, "B" 1914, pp. 367-368.
2. Lantín, P. T., et al.: Unusual types of typhoid infections. *Jour. Phil. Is. Med. Assoc.* 21: 379-383, Aug. 1941.
3. Petersen, W. F.: *The Patient and the Weather*. Vol. I. Edwards Brothers, Inc. Ann Arbor, Michigan, 1935, pp. XI to XV.
4. Rolleston, J. D.: *Acute Infectious Diseases*. London, William Heinemann, 1925, p. 189.

MODERN TRENDS IN UROLOGY¹

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There is perhaps no branch of surgery that can claim a more accurate diagnosis than, or in which pre-operative and post-operative treatment offers so much in reducing the hazards of operation as, urology. To these attributes we should add the remarkable strides made in the last few years, which entitle urology to a very deserving place in the distinguished ranks of the surgical specialties.

To realize fully the remarkable advances made in urology, it is only necessary to look back forty years. Diagnosis became the basis for its early recognition. The hitherto vague picture based upon indefinite symptoms and physical findings, inconclusive laboratory tests and unsatisfactory X-ray examinations, became clear with the introduction of the modern cystoscope, especially when such investigations were supplemented by modern radiographic technics.

Urologists are all alert to the possible presence and great variety of anomalies of the urinary tract and their clinical significance. Operative procedures designed to correct disturbances of function due to the presence of such anomalies have reached a high plane of perfection in recent years. Many advances have been made in the surgical management of renal affections, and the watchword is conservatism. Many kidneys are now preserved which previously would have been considered irreparably damaged and removed. More conservative operations are performed year after year. As experience in this type of surgery has grown, the results, both immediate and ultimate, have become increasingly more satisfactory. The refinements of pyelographic diagnosis have enabled the urologist to pick up hydronephrosis in its early stage; and, by an adequate early treatment, he has been amply rewarded by most gratifying results. The modern urologist does not wait for a partial obstructive nephropathy to pass into the decompensating stage of hypotony and hypokinesis, to end eventually in complete atony. Too often, by simply dissecting all perirenal and peripelvic adhesions down to the renal hilum, aberrant vessels and adhesions are disposed of without the much feared infraction following division of polar vessels. Thus, nephrolysis has become a standard procedure; and, despite the theory of renal counterbalance advocated by some, it has given relief to strictures at the uretero-pelvic junction, and has restored to normal function hydronephrotic kidneys that have manifested symptoms of gastro-intestinal diseases, like pain in the epigastrium or in the right lower quadrant.

Plastic operations on the renal pelvis have been resorted to more and more. More plastic operations on the kidneys are done each year. Some of the earlier procedures have been discarded, and newer ones have been developed. Calycectomies and hemi-

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nephrectomies have found a wider range of application. Procedures have been elaborated to such an extent that a restoration of function little dreamed of in former times have been achieved with surprisingly good results.

In the same way, one cannot but be impressed by recent studies in hypertension, especially as regards unilateral kidney disease as a possible etiological factor. Cases of unilateral pyelonephritis, with associated hypertension and cured by nephrectomy have been reported in many clinics, with excellent follow-up results. Through the use of inulin and Diodrast clearance test, it has been possible to ascertain with amazing accuracy the function of the two million nephrons of the kidneys, and of the glomeruli and the tubules, separately.

The interrelation between urology and the various body systems and functions as well as the benefits to be derived from team work among the internist, the physical chemist, the laboratory technician, and the urologist has been demonstrated. Cases have been reported where dramatic results were accomplished following nephrectomy, and other cases where the procedure was a failure. Such instances give as much food for thought, and urologists and internists alike are awake to the possibilities which may result from continued study of this fascinating problem.

One of the most dramatic events in urology since the inception of excretory pyelography, has been the advent of the sulfonamide group of drugs and the recent introduction of penicillin, and their employment in the treatment of urinary infections. Cases of acute, and sometimes chronic, pyelonephritis frequently respond satisfactorily to the administration of these drugs. Infections in the presence of organic anomalies have been controlled in a manner that may lead us to revise our ideas of radical surgery. However, it must be borne in mind that patients require the same study as formerly, with regards to both of the lesions in the urinary tract and of the associated pathology. For, although urinary infection may temporarily clear up rapidly under chemotherapy, a recurrence of the infection is to be expected if the primary focus is not eradicated and predisposing causes in the urinary tract such as stasis are not removed.

The surgical treatment of malignant lesions of the bladder still presents many problems. While the subject is too broad to be discussed in this paper, a definite trend has to be mentioned. The indications for total cystectomy have undergone certain changes in recent years. The preliminary transplantation of the ureters in the intestine and the complete extirpation of the bladder are carried out with less hesitation and with more success than formerly. And after all the numerous techniques advocated in these years in the transplantation of the ureters in the intestine have been surveyed, it is safe that the procedure designed by Coffey has not lost any of its former prestige. It should be mentioned in passing that sulfasuxidine has done its part in this delicate operation.

The most brilliant contribution of urology to medicine in recent years has undoubtedly been the endocrinologic approach to carcinoma of the prostate. It absorbs the thought of the urologic world at the present time, and has inaugurated new paths of study in other branches of medicine in the solution of this most dreaded disease. Huggins, Stevens, and Hodges in 1941 reported the results of extensive studies made on the ameliorative effect of castration on prostatic cancer. When carcinomatous prostate tissue metastasizes, invasion of lymph or blood channels is

accompanied by escape of the prostatic secretion into the circulation. Because of its high acid phosphatase content, the prostatic secretion present in blood can readily be detected by means of appropriate chemical methods.

Clinically, orchiectomy is followed by relief of pain, increase in body weight, diminution of residual urine, and changes of repair in the osteolysis of the metastatic lesions. While it is too early to determine the exact value of castration in prostatic cancer, the reports of urologists using this treatment have been more than encouraging. The distinguished work of Huggins and his co-workers marks the turning point in the battle against cancer of the prostate. It has given very much relief from human suffering; and, whether this improvement be permanent or only temporary, the importance of their contribution cannot be minimized.

These last few years have also witnessed the acceptance of endoscopic or transurethral approach for removal of bladder neck obstructions as one of the greatest surgical achievements of this generation. The advances which have been made in the treatment of the old and debilitated prostatic patients stand unquestioned in the annals of urology as one of the triumphs of endoscopic surgery. About thirty years ago, there was a startling mortality rate of fifty per cent following open prostatectomy. The confusion and bitter controversy following the introduction of endoscopic surgery has now simmered down to individual proficiency and technical training. The groundwork of treatment has become standardized, and the expert hands of trained resectionists have reduced this appalling mortality of notably poor surgical risks to a commendable minimum.

During the last five years, scores of brilliant reports of transurethral prostatic resections have appeared in literature. Tremendous strides have been made by prostatic resection as judged by the excellent results obtained, with a reported mortality of as low as 1.5% in some clinics. Everybody now recognizes that bars, contractures, and adenomas should be managed transurethraly. Everybody also agrees that weak and debilitated and very old patients should be given the benefit of this least traumatizing of prostatic procedures.

In this connection it is indeed hard to be convinced why an operation that is considered safe and advisable for the aged and the weak, should not be safer for the younger and stronger patient. The mortality and morbidity have been materially reduced by the experienced resectionist. The hospital stay has become a matter of days instead of weeks; transurethral resection has set a record of the shortest hospital stay — without an equal in the history of prostatic surgery. Immediate postoperative shock has been minimized. The fear of a severe or traumatizing operation, which is so frequently seen in these old patients, is not aroused when they are assured that no external incision has to be made. Patients are willing to submit to operation earlier, before structural complications have set in. Enormous progress has been accomplished in the refinement of endoscopic technic and instruments, and there is a definite trend towards their universal application as well as the attainment of a still higher degree of perfection.

For obvious reasons, it has been impossible for me to even mention all the important phases of Urology in such a generalized paper as this. I have, however, tried to emphasize some of the more important and common phases of this specialty and the general trends in their management, especially as regards present day technics.

The foundation has been laid, but the problems are still manifold. Many of them have been handled in a very scientific and satisfactory manner by the distinguished pioneers in urology; the rest of the problems are being studied by trained researchers, who, by their persistent efforts, improvements of technic, and organization, have presented to the profession the benefit of their large experience.

BIBLIOGRAPHY

1. Barnes, R. W.—Endoscopic Prostatic Surgery—C. V. Mosby Co. 1943.
2. Colston, J.A.C.—Johns Hopkins Hospital, Baltimore, Md. Personal communication.
3. Emmett, J.L.—The Mayo Clinic, Rochester, Minn.—Personal communication.
4. Lewis, L.G.—Walter Reed Hospital, Washington, D.C.—Personal communication.
5. McIver, R.B.—Jacksonville, Fla.—Personal communication.
6. Priestley, J.T.—Surgical Treatment of Non-Calculous Hydronephrosis—Surgery, Gynecology & Obstetrics 68:4: 832-841.
7. Young, H.H.—Johns Hopkins Hospital, Baltimore, Md.—Personal communication.

LOCAL INSTILLATION OF PENICILLIN IN CHRONIC SUPPURATIVE MAXILLARY SINUSITIS¹

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This report is based on the study of fifteen cases of chronic suppurative maxillary sinusitis treated by local instillation of penicillin and followed up for varying periods for months. All were dispensary patients of the North General Hospital. Most of these cases had been under treatment for the same condition elsewhere without any, or with only temporary, alleviation of their complaints.

As a fundamental requirement in the proper use of the drug, bacteriological identification of the causative organism was very necessary. However, due to the inadequacy of laboratory facilities, we proceeded with the study notwithstanding.

Choice of the route of administration was based on the following:

1. The drug might be brought to bear on the seat of infection without minimizing its concentration by the natural routes of body elimination;
2. It would be easy and less painful to the patient;
3. The patient need not be hospitalized or be under constant medical attendance.
4. This method might prove more economical in the long run.

SELECTION OF CASES

No special effort was exerted in the selection of cases. So long as they were diagnosed as suppurative maxillary sinusitis, and confirmed by displacement irrigation, they were induced to submit to this form of treatment.

No control group was kept, because it was believed that these patients were their own control group, having undergone various treatments previously without success, with same method of antral irrigation but without use of penicillin.

TECHNIC AND STANDARD OF INTERPRETATION

Displacement irrigation with normal saline was carried out through the exploratory puncture route. Penicillin, 5 cc. of a 1:10,000 units dilution, was then instilled into the diseased sinus through the cannula. To prevent the penicillin from flowing out of the antrum, the patient was kept in positional rests for about five to ten minutes. The patient was then asked to report daily for the same procedure and to observe the effects of such management on headache, nasal obstruction, abundance and odor of the nasal discharge. On subsequent irrigations, the results were noted as to amount, odor, and consistency of the discharge.

¹ Read at the 39th Annual Meeting of the Philippine Medical Association held May 9, 1946.

These patients were also asked to observe simple health rules as avoidance of sudden and undue exposure to heat and cold, having enough rest, partaking of well-balanced and nutritious diet, and correction of all foci of infection notably the teeth.

A patient was declared completely recovered if, after 3 or 4 days of subsequent irrigations without penicillin administration, no mucoid discharge were passed out and all his previous complaints had disappeared. Incomplete recovery was declared for those patients who were relieved of their complaints but who, on irrigation, continued to pass out scanty mucoid discharge.

RESULTS

Of the 15 patients treated, 11 were declared completely recovered (73%). Four cases were incomplete recoveries (26.6%).

The average follow-up period was 5.8 months, but individual check ups ranged from 8 months to 4 months.

Of the 11 declared completely recovered, 4 had a recurrence of the same sinus trouble (36%). One case of incomplete recovery, however, was found to have recovered completely after eight months. The 3 other cases of incomplete recovery have remained so. The recurrence period averaged more than five months. The amount of penicillin used varied with the individual cases.

The rate of recovery was found to be independent of the chronicity of the disease from the viewpoint of total disease duration. This is exemplified by cases No. 6 and 10, both of whom recovered within a week and remained negative for discharge.

Two cases previously operated on for naso-antral perforations did not entirely recover.

Relief from the subjective complaints was almost immediate in nine cases. Five cases were completely relieved within 5 days and one within 10 days.

DISCUSSION

At the time this study was started, there had been meager reports on the use of penicillin locally in diseases of the maxillary sinuses, especially the chronic suppurative variety. One handicap was the lack of a standard for the unit strength of penicillin solution that might be used without impairing the integrity of the nasal epithelium. However, the dilution of 1:10,000 units was used with the idea of concentrating a larger amount of the drug to permeate into the diseased tissue as well as to make up for the probable losses of the drug. The fear that that concentration might be irritant seems not to have been borne by the rapid recovery of the patient, both objectively and subjectively, and the absence of any irritative signs locally or systematically.

The most visible effects of penicillin among the cases were the rapid relief from headache and the constant change in character of the discharge from foul purulence to odorless mucoid consistency. Penicillin, in exerting this change, seems to have acted as a deodorant. Although it may be contended that simple irrigation may have done the same thing, yet these patients were themselves impressed by the relief that they obtained.

Follow up of these cases proved conclusively that recurrence as soon as the administration of the drug was stopped, was not so frequent as it was thought it might be.

SUMMARY AND CONCLUSION

1. Penicillin, by local instillation method, following antral displacement irrigation, has proven of definite value in causing the recovery from chronic suppuration of the maxillary sinus. This is borne out by 11 complete recoveries in 15 cases treated by this method.
2. Subjective complaints were quickly relieved.
3. Penicillin seems to have acted as deodorant in foul suppuration of the sinus.
4. Recurrence period averaged more than 5 months.
5. Recurrence occurred in 4 cases or about 36% of the series.

No. Cases	Diagnosis	Duration of Disease	Duration of treatment before Penicillin	Period of change	Duration of Penicillin Treatment	Result	Total Penicillin Units	Follow-Up Period		Operative Intervention
1. M. R.	Max. Sin. Left	1 year	4 months	2 days	14 days	(—)	500,000	8 months	+	
2. P. R.	" " "	6 months	1 month	1 day	6 days	(—)	300,000	7 months	—	
3. O. R.		1 year	1 month	3 days	9 days	(—)	200,000	5 months	—	
4. O. P.	" Rt.	6 months	—	7 days	14 days	(—)	400,000	8 months	—	
5. M. D.	" Left	8 months	3 months	2 days	7 days	(—)	400,000	5 months	±	
6. B. A.	" bil.	3 years	2 months	1 day	5 days	(—)	200,000	6 months	—	
7. L. V.	" Rt.	1-1/2 yr.	2 days	3 days	15 days	±	500,000	4 months	±	
8. A. A.	" Rt.	3 years	8 months	4 days	10 days	—	300,000	4 months	+	
9. P. L.	" bil.	6 months	1 month	1 day	4 days	—	200,000	5 months	—	
10. C. L.	" Rt.	7 years	7 days	1 day	4 days	—	200,000	6 months	—	
11. M. G.	" "	1 month	2 weeks	2 days	8 days	—	200,000	5 months	±	
12. R. A.	" bil.	1 year	2 months	2 days	6 days	±	200,000	5 months	±	
13. P. C.	Ethmoiditis bil. adenoid Max. Sin. Left	6 months	3 months	4 days	14 days	±	800,000	8 months	(—)	Removal polyp left
14. P. E.	" " Rt.	1 year	4 months	1 day	7 days	(—)	200,000	5 months	+	Naso-antral Perforation
15. C. S.	" "	8 months	4 months	10 days	28 days	±	500,000	7 months	±	Naso-antral Perforation

OCULAR WAR INJURIES¹

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The cases of ophthalmic war injuries studied in this report consist mainly of the casualties among the civilian population in the city of Manila and its environs from September 21, 1944 to January 1945. Although the number of cases is few due to the loss of the records of other similar cases as a result of the fire that gutted the records section of the Philippine General Hospital during the Battle of Manila, we thought of presenting this little study to transmit to you our experiences and observations gathered under the most trying and difficult conditions, to which we were subjected during the period of emergency. A total of 14 cases of uni-ocular war injuries admitted in the charity wards of the Philippine General Hospital was gathered during the period under review from all available sources which were not destroyed by the fire and from the files in our memory. The lesions were all attributable to bomb explosion.

For the purpose of this work, a regional classification of injuries of the optic apparatus as given in the American Encyclopedia of Ophthalmology was adopted as follows:

1. Ocular injuries from concussion:—Concussion injuries as a result of tremendous atmospheric compression and decompression accompanying load explosion was a frequent occurrence observed during the first World War. There were plenty of cases of chorioretinal lesions, concussion traumatic cataract dislocation or subluxation of the lens, detachment of the retina, iridodialysis, etc. reported by Continental Ophthalmologists. In our study, there was one case of detachment of the retina, admitted soon after the liberation.

2. Ocular injuries from penetration with or without foreign body:—We have eleven cases of perforating injuries of the eye which constitute the majority of the ophthalmic injuries in this study having a percentage of 78.57%. The perforations were anterior rupture in all cases. Posterior rupture was not observed among the cases. As to the site of lesions in the 11 cases, 2 had corneal wounds with prolapse of the iris, the rest had severe lacerated wounds involving the cornea, the ciliary region, and sclera with prolapse of the uveal tissue and partial loss of the intraocular contents. All the patients were admitted immediately or a day after the bombing, except one case of sclero-corneal wound which was admitted 8 days after the injury, with signs and symptoms of panophthalmitis. All other cases did not develop infection. Of 11 cases with perforation, 5 had intraocular foreign bodies (shrapnel), which were seen post-operatively. Simple enu-

¹ Read at the thirty-ninth annual meeting of the Philippine Medical Association, held in Manila, May 9, 1946.

cleation was performed in 9 patients, constituting 64%. Two other patients with corneal lesions were treated conservatively. The 9 cases of badly lacerated wounds in the cornea, sclera and ciliary region had entirely negative vision, while the two patients with wounds in the cornea had only light perception. Of the 14 cases in the series, 11 had practically lost the vision in one eye constituting 78.5%.

3. Wounds of the lids, adnexa, and orbit:—There were two patients admitted who sustained penetrating injuries of the lids and orbital tissues due to shrapnel, without producing external injury to the eyeball. Both patients, on admission, manifested signs and symptoms suggestive of orbital foreign body, such as edema of the lids, chemosis of the conjunctiva, proptosis, diminution in the visual acuity, and limited movements of the eyeball in some cardinal directions of gaze. The final diagnosis of foreign body in the orbit was confirmed by the radiologic findings of a foreign body (shrapnel) in the orbit. Both patients had moderately good vision; 20/40 and 20/80 respectively.

It should always be borne in mind by any ophthalmic surgeon to regard any wound of the eye to be potentially infected. For this reason a regime of asepsis and anti-sepsis must be followed. The administration of prophylactic doses of antitetanic serum of 1500 units subcutaneously is a routine procedure which is advised by many ophthalmologists in cases of perforating injuries of the eye. The occurrence of tetanus infection was reported in the literature during the first World War. There was not a single case of tetanus observed in our cases, although the majority of our patients did not receive the usual prophylactic dose of the serum, due to the limited supply of it during the period of emergency. Only 3 patients received the usual prophylactic dose of the serum. Although the eye is one of the most, if not the most, susceptible and least resistant organ to infection, it seems from our observation and experience that tetanus should not be feared very much in ocular injuries.

To protect the eye from infection and to promote the healing of the wound in perforating injuries of the eye, especially its anterior segment, it is recommended to cover the wound with a conjunctival flap. Although we have not had the opportunity to follow this treatment in our cases, we are fully cognizant of its important role in certain selected cases. Also in scleral wounds scleral sutures are advised with the use of atraumatic needle. In injuries involving the cornea with prolapse of the iris, the prolapse iris should be excised. Two cases of the same kind of lesion was treated by excision of the prolapse iris.

Chemotherapy, like the administration of sulfa drugs and penicillin, has a definite and important role in the prevention of infection in perforating injuries of the eye. The majority of our patients did not receive the sulfa drugs due to the exorbitant price of them at that time. We have not had the chance to use penicillin in our cases for obvious reasons.

In the management of perforating injury of the globe, it is the primary concern of the oculist to consider the question as to whether there is a foreign body or not; because its presence inside the eye is bound to convert that injury into a serious lesion, however tiny or insignificant the foreign body may be. If there is a foreign body, is it intraocular or extraocular? The localization and management of an ocular

foreign body is a great problem in ophthalmic injuries. Where the media is so clear as to permit a fundus examination, ophthalmoscopy is certainly a diagnostic means to help us in the localization of a foreign body. However, in the majority of instances, changes in the vitreous, particularly hemorrhage, prevent ophthalmoscopic examination.

A roentgenologic study affords the best and most accurate means of localization of an ocular foreign body. In this connection, the use of the Comberg's localizer and the Sweet method are well known to many ophthalmologists. It is said that no intraocular search for a foreign body is justifiable without a careful roentgenologic study of the eye and orbit from different angles. In our study, however, due to the shortage and the poor condition of the X-ray films, X-ray examination was not resorted to, except in the 2 cases of foreign bodies in the orbit which was confirmed by the radiologic finding. An attempt to remove the foreign body (shrapnel) in one case by making an incision of the skin of the lid on a line corresponding to the orbital margin in the nasal side, failed, due to the deep location of the foreign body in the orbit. Both patients were discharged with the shrapnel left in situ. It seems evident that the orbital tissues showed surprising tolerance to shrapnel without exciting or setting up evidences of inflammation. For lack of a better follow-up of these two cases due to disruption in the means of communication and the instability of domicile, nothing can be said now about them. Another method which is taken advantage of in the management and diagnosis of ocular foreign body is the use of the electromagnet. Unfortunately, the giant electromagnet in the Philippine General Hospital was out of order.

During the first World War, there was the question as to whether enucleation or evisceration should be the choice of operation in perforating injuries of the eye. In a study of a sufficient number of the late symptomatic results of the 2 operations, one European ophthalmologist, Dor, concluded that enucleation was to be preferred to evisceration. Photophobia, lacrimation, and periorbital pain at the side of the head and face were complained of by patients operated for evisceration. Of the 8 patients on whom enucleation was performed, the indications of the operation were the badly shattered condition of the eyeball and the fear of sympathetic ophthalmia due to involvement of the ciliary region. Another indication was panophthalmitis in one patient, which developed outside several days after the injury. No untoward complications were observed among our operated cases. One outstanding observation that we noted on the enucleated eye was that the amount of damage after the operation, in extent of injury was much greater than was revealed by the external appearance of the wound. Sympathetic ophthalmia was not observed among our patients. The absence of this condition was due to a large measure to the early preventive enucleation.

SUMMARY AND CONCLUSION

1. 14 cases of unioocular injuries due to bomb explosion are reviewed.
2. The majority of the lesions consisted of perforating wounds of the globe constituting a percentage of 78.57%.
3. In ocular war injuries one observation was that the amount of damage seen or

the extent of injury was much greater than was revealed by the external appearance of the wound.

4. Sympathetic ophthalmia was not observed in our cases due to early preventive enucleation which is the best prophylaxis against the occurrence of sympathetic ophthalmia.

SIMPLIFIED ARTIFICIAL INFANT FEEDING ¹

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In his paper, *The Simplicity of Infant Feeding*, Dr. McKim Marriott stated, "Infant feeding is in reality, simple, but has been made unnecessarily complex through a lack of understanding of the fundamental factors involved." We shall attempt, therefore, to discuss the subject as simply as possible.

There are four methods of feeding a child artificially:—

1. Caloric method
2. Dilution method
3. Percentage method
4. Proprietary foods

The caloric method is our choice, because it enables us to determine easily the number of calories and the corresponding amount of food a baby needs in order to thrive.

Before discussing this method, it is well to enumerate the factors which make a certain food suitable for infants.

1. It should contain the proper elements that would give nourishment and promote growth.
2. It should be digestible.
3. It should meet the caloric needs.

It should contain the proper elements that would give nourishment and promote growth. From this point of view, milk is an ideal food, because it contains:

- a) Protein — for body tissues and cell-building
- b) Fat — for the bones and nerve cells
- c) Carbohydrates — for heat and energy
- d) Salts — for secretion of gastric juice and good absorption of food
- e) Water — for dilution
- f) Vitamins — for prevention of different kinds of diseases.

It should be digestible:

Ideal Food — Mother's milk

The next — Cow's milk

Mother's milk — Fat, 4%; Protein, 1.5%; Sugar, 6.5-7.00%; Salts, 0.2%

Cow's milk — Fat, 4%; Protein, 3.5%; Sugar, 4.5%; Salts, 0.75%

Mother's milk — Protein-Casein, 1/2; Lactoalbumen, 1/2

Cow's milk — Protein-Casein, 4/5; Lactoalbumen, 1/5

By dilution — by adding water.

¹ Read at the Section on Medicine & Pediatrics, 39th Annual Convention of the Philippine Medical Association, Manila May 7-11, 1946.

By boiling — in a double boiler for 2 to 3 minutes, forming fine curds suitable for infants digestion.

By alkalizing or addition of some alkalis — lime of water usually in amounts equaling 5% of the milk in the mixture (1 ounce to 20 ounces of milk); sodium bicarbonate or sodium citrate 2 grains to one ounce of milk.

Sodium when added replaces some of the calcium in the caseinate and forms calcium-sodium-caseinate; when renin is added, this double salt is changed to calcium-sodium-paracaseinate. The presence of sufficient quantity of sodium in the milk prevents it from curdling.

It should be able to supply caloric needs. In other words, a baby must have enough food to cover its needs and to promote continuous growth. This value is expressed in terms of heat units or calories. The caloric requirements represent simply the number of heat units necessary for the individual to ingest in order to thrive.

According to the late Dr. McKim Marriott — young, healthy, breast-fed or artificially fed infants, gaining in weight at normal rates, require an average of 110 to 115 calories per kilogram per day or 50 to 55 calories per pound. This requirement slowly diminishes to about 110 calories per kilogram (50 calories per pound) by the sixth month, and 90 to 100 calories per kilogram (40 to 45 calories per pound) by the end of the first year.

Dr. Julius H. Hess, Head of the Department of Pediatrics, College of Medicine, University of Illinois, gives the following rules for computing the proper amount of proteins, fat, carbohydrates, and water in the food needed by the child to supply the caloric needs:

For PROTEIN: A minimum of 1.5 ounces of milk to every pound of body weight or 1.5 gram of protein per pound body weight (3.3 gram per kilo). This can be increased to 2-2.5 ounces in the case of nourished children.

For FAT: Although the tolerance for fat of cow's milk varies greatly with different individuals, most infants digest and assimilate 1.5 to 2.0 grams of fat per pound body weight daily.

For CARBOHYDRATES: The total carbohydrates (sugar contained in the milk, sugar added to the milk cereal, if used), should average from 4. to 6 grams (1/8 to 1/5) per pound (from 9 to 13 grams) of the body weight a day.

WATER to be added: Young infant require a minimum of 1/5 of their body weight in total fluids daily (3 ounces per lb.) and in their late months at least 1/8 of their body weight (2 ounces per pound). Per kilogram 100 to 130 cc.

The amounts of protein, fat, and carbohydrates in every formula given in this discussion are checked, in order to determine if they are in accordance with the rules of Julius Hess, tabulated below:

(BASAL SCHEME FOR FEEDING DURING FIRST YEAR MILK)
TOTAL FLUID AND CALORIES PER POUND OF BODY WEIGHT

	Milk oz. per lb.	Total fluid oz. per lb.	Calories per lb.	Diluent
Birth to 3 mos.	1.5	3	50	sterile water
3 mos. to 6 mos.	1.5	3	45	cereal water
6 mos. to 9 mos.	1.5	2	40	" "
9 mos. to 12 mos.	1	2	40	thick cereal

The amount, interval and number of feedings also appear below in the same form:

AMOUNT AND NUMBER OF FEEDINGS

Age	Interval	Number of Feeding		Quantity in Ounces
		Day	Night	
Birth to 3 mos.	3 hrs.	5	2	1.5
3 mos. to 6 mos.	4 "	4	1.2	5.8
6 mos. to 12 mos.	4 "	1	1	8
9 mos. to 12 mos.	4 "	1	1	8

CONSTRUCTION OF FORMULA

Age 3 mos. Weight 12 lbs.

Calories required within 24 hrs. = 12×50 calories = 600 calories

Milk $12 \times 1.5 = 18$ oz. $\times 20$ Cal. = 360 cal.

Water $12 \times 3 = 36 - 18 = 18$ ounces.

Sugar to be added $2 \times 120 = 240$ calories

360 calories plus 240 calories = 600 calories

Formula:— Milk — 18 oz.

Water — 18 oz. $36 \div 7$ feedings = 5 plus oz. every 3 hrs.

Sugar — 2 oz.

Protein: $x : 18 = 3.5 : 36 = \frac{18 \times 3.5}{36} = 1.75\%$

Fat: $x : 18 = 4.5 : 36 = \frac{18 \times 4.5}{36} = \frac{81}{36} = 2.25\%$

Sugar (milk) $x : 18 = 5 : 36 = \frac{18 \times 5}{36} = \frac{90}{36} = 2.5\%$

Sugar added $x : 2 = 100 : 36 = \frac{100 \times 2}{36} = \frac{200}{36} = 5.55\%$

Protein: $1080 \times 0.0175 = 18.9 \div 12 = 1.57$ Gm.

Fat: $1080 \times 0.0225 = 24.3 \div 12 = 2.02$ Gm.

Sugar (milk) $1080 \times 0.025 = 27 \div 12 = 2.25$ Gm.

Sugar added $1080 \times 0.0555 = 59.9 \div 12 = 4.99$ Gm. } = 7.24 Gms.

We should like to present a case as an example of the method we use in the hospital with good result. Of course, we have other cases; but some of these cases are mixed, while others do not stay long enough to merit an observation. It is unfortunate that we have not been able to arrive at some definite conclusion on this study. For last month, this case suddenly developed fever, vomiting and tympanism on the third day after admission. The abdomen became so big and tympanitic with persistent vomiting that we decided to take the case to the Philippine General Hospital for probable intestinal obstruction. The relatives, however, insisted in taking the child home after one days' stay in the Philippine General Hospital, although it had not shown any improvement.

The chart below show the kind of feeding we gave the patient before he got ill, his weight curve, and his improvement in our hospital.

HEIGHT AND WEIGHT RECORD OF LEONARDO RUSTIA

Date	Age of Baby in Weeks	Weight in Kilogram	Height in Centimeters
Feb. 4/'46	9th week	1.750	50 centimeters
Feb. 10/'46	10th "	2.100	50 "
Feb. 17/'46	11th "	2.200	50.5 "
Feb. 24/'46	12th "	2.200	51 "
Mar. 3/'46	13th "	2.100	51 "
Mar. 10/'46	14th "	2.300	51.5 "
Mar. 17/'46	15th "	2.400	51.5 "
Mar. 24/'46	16th "	2.450	52 "
Mar. 31/'46	17th "	2.500	52 "
Apr. 7/'46	18th "	2.800	52 "
Apr. 14/'46	19th "	2.780	52.5 "

LEONARDO RUSTIA

February 4, 1946

Age: 9 Wks. Wt. — 1.75 Kg. or 2.75 Lbs.

Formula:

Evap. milk	10 c.c.	} Every 3 Hrs.
Water	50 c.c.	
Syrup	1 tsp.	

$$10 \times 7 = 70 \times 2 = 140$$

$$140 \div 30 = 4.66 \div 2.75 = 1.7 \text{ Oz. of milk per body wt.}$$

Milk:

$$10 \times 7 = 70 \text{ c.c.}$$

$$70 \div 30 = 2.33 \text{ oz.}$$

$$2.33 \times 40 = 93.2 \text{ cal. of milk}$$

Sugar:

$$1. \times 7 = 7 \text{ tsp.}$$

$$7 \div 3 = 2.3 \text{ tsp.}$$

$$2.3 \times 4.5 = 10.35 \times 4 = 41.40 \text{ cal. of sugar}$$

$$\frac{93.2 \div 41.4}{1.75} = 76.9 \text{ cal. per kg. of body}$$

Protein: $x : 10 = 5 : 60x = \frac{10 \times 7}{60} = \frac{70}{60} = 1.16$

Fat: $x : 10 = 9 : 60x = \frac{10 \times 9}{60} = \frac{90}{60} = 1.5$

Sugar of milk: $x : 10 = 10 : 60x = \frac{10 \times 10}{60} = \frac{100}{60} = 1.6$

Protein: $60 \times 0.0116 = 0.696 \times 7 = 4.872 \div 2.75 = 1.7$ Gm.

Fat: $60 \times 0.015 = 0.9 \times 7 = 63 \div 2.75 = 2.2$ Gm.

Sugar: $60 \times 0.016 = 0.96 \times 7 = 6.72 \div 2.75 = 2.46$ Gm.

Sugar — $10.35 \div 2.75 = 3.7 \div 2.4 = 6.1$ Gm.

February 7, 1946

106 cal. per kg. of body wt.

65.9 cal. per lb. of body weight

Protein: 2.6 Gm. per lb. of body wt.

Fat: 3.4 Gm. per lb. of body wt.

Sugar: 7.5 Gm. per lb. of body wt.

February 13, 1946

114 cal. per lb. of body wt.

51.9 cal. per lb. of body wt.

Protein: 2.0 Gm. per gm of body wt.

Fat: 2.66 Gm. per lb. of body wt.

Sugar: 6.92 Gm. per lb. of body wt.

February 28, 1946

115 cal. per kg. of body wt.

52 cal. per kg. of body wt.

Protein: 2.4 Gm. per lb. of body wt.

Fat: 3.27 Gm. per lb. of body wt.

Sugar: 7.7 Gm. per lb. of body wt.

March 11, 1946

154.6 cal. per kg. of body wt

70.2 cal. per kg. of body wt

Protein: 2.6 Gm. per lb. of body wt.

Fat: 3.5 Gm. per lb. of body wt.

Sugar: 7.1 Gm. per lb. of body wt.

April 1, 1946

Age: 4 Mos. and 1 wk. Wt.—2.5 kg. = $5.5 \times 2.2 = 5.5$ lbs.

Formula:

Milk	35 c.c	} every 3 hrs.
Water	90 c.c.	
Syrup	2 tsp.	

Milk:

$35 \times 7 = 245$ c.c.

$245 \div 30 = 8.1$ oz.

8.1×324 calories of milk

Sugar:

$$\begin{aligned}
 2 \times 7 &= 14 \text{ tsp.} \\
 14 \div 3 &= 4.7 \times 4.5 = 21.15 \text{ Gm. of sugar} \\
 21.15 \times 4 &= 84.6 \text{ cal. of sugar} \\
 \frac{84.6}{2.5} \div 324 &= \frac{408.6}{2.5} = 163 \text{ cal. per kg. of body wt.}
 \end{aligned}$$

$$\text{Protein:} \quad x : 35 = 7 : 125 = \frac{35 \times 7}{125} = \frac{245}{125} = 1.9\%$$

$$\text{Fat:} \quad x : 35 = 9 : 125 = \frac{35 \times 9}{125} = \frac{315}{125} = 2.5\%$$

$$\text{Sugar (milk):} \quad x : 35 = 10.125 : 125 = \frac{35 \times 10}{125} = \frac{350}{125} = 2.6\%$$

$$\text{Protein in formula: } 125 \times 0.019 = 2.4 \times 7 = 16.8 \div 5.5 = 3 \text{ Gm.}$$

$$\text{Fat: } 125 \times 0.025 = 3.1 \times 7 = 21.7 \div 5.5 = 3.9 \text{ Gm.}$$

$$\text{Sugar (milk): } 125 \times 0.026 = 3.75 \times 7 = 26.25 \div 5.5 = 4.7 \text{ Gm.}$$

$$21.15 \div 5.5 = 3.8 \div 4.7 = 8.5 \text{ Gm.}$$

For several years before the outbreak of the Pacific War, the senior author of this paper used this method (the caloric method) of feeding at the Gota de Leche with fresh cow's milk; and he observed that children gained around 395 grams every month or an average of 13 grams daily.

Normally, infants gain 600 grams every month for the first 5 months, or 20 grams daily; and 500 grams every month after the sixth month, or 15 grams daily.

Cases given our formulas at the Gota de Leche very seldom developed gastrointestinal diseases.

According to our experience in our hospital, giving children the number of calories they needed gradually enabled us to avoid gastrointestinal disturbances.

COMMENTS :

A thorough knowledge of the subject in infant feeding makes its simplicity evident.

A good and properly prescribed formula for an individual infant insures a more or less normal gain in weight and prevents serious gastrointestinal diseases.

Since unsweetened evaporated milk may be used to advantage with the caloric method, we use it in our hospital.

We have plans for improving our hospital, because we believe it is the only one in the Islands dealing mostly with feeding undernourished children; but lack of funds and of space has hampered us.

When the Indigent Children's Hospital was under PCAU and later under Dr. Juan Salcedo, Jr., former Director of Public Welfare, it occupied the whole building of the Bureau of Public Welfare; and the admission was under the control of the medical staff of the hospital. But we were able to admit more patients than we were now.

When Dr. Salcedo was the Director of Public Welfare, the senior author of this paper was transferred from Welfareville to this hospital with the understand-

ing that he would be the Chief of Section of Undernourished Children, and that, if Dr. Salcedo succeeded in carrying out his plan to put other clinics of this kind in the provinces, he (the senior author) would supervise them.

We would like, therefore, to request the proper authorities that impetus be given to this work and that funds and space be given us; so that we may be able to bring down the rate of infant mortality, one of the biggest problems with which our country is beset.

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Editorial

DUST: NEW MENACE TO PUBLIC HEALTH

In the early days of the Japanese occupation, those concerned with public health feared that there might be outbreaks of epidemics, which usually come in the wake of every war. All the factors conducive to epidemics were present — dirty streets, malnutrition, defective garbage and waste disposal, lack of quarantine facilities. There was the greatest possibility that new

infections from neighboring countries might be brought by the invading forces and spread throughout the occupied areas.

That fear, however, was allayed somewhat by the common knowledge that the population of the Philippines had, for the last quarter of a century, been subjected to intensive mass protective immunization. It was hoped that this preventive measure would protect the people from the ever present threat of epidemics during the critical years.

This hope was justified. Not a single epidemic of any noticeable proportion ravaged the country, although epidemics were reported in other countries. This fact definitely demonstrated the efficacy of periodic mass immunization of the people against infectious diseases.

Since liberation, however, a new menace to public health has appeared. The city streets, the country roads, and the national highways, which were not only completely neglected during the enemy occupation, but were also subjected to heavy military traffic, have been pounded and pulverized by a continuous and relentless stream of jeeps, trucks, tanks, and bulldozers — until the air especially in Manila and its vicinity, has become almost completely laden with very fine dust.

This dust is literally forced into the respiratory system through the strong currents of air developed by the speeding vehicles. Since dust particles carry a great number and variety of micro-organisms, it is inevitable that some of these micro-organisms would find their way into the lungs and even into the adjacent tissues, through the minute injuries caused by the sharp dust particles.

Of course, no immediate deleterious effect on the health of the community will be observed. But within a few years, our statistics on pulmonary affections — principally tuberculosis, cancer of the lungs, and bacterial and mold allergy — would doubtless rise appreciably. In addition, there are bound to be numerous other chronic affections which will lower the vitality of the people a great deal and predispose them to more acute diseases later.

Dust particles also settle on foods, drinks and fruits sold in unprotected stalls that line the sidewalks even in downtown Manila. In this way, pathogenic organisms may easily find their way into the gastrointestinal tracts of the people and give

rise to diseases against which they have not been at all immunized.

Because of these imminent dangers, it is to the best interest of public health in the Philippines, particularly in the densely populated centers like Manila, that we solve the dust problem with efficiency and dispatch. This means that the repair and resurfacing of streets and public highways should be given preferential attention. It is an obligation, the fulfillment of which the government cannot afford to postpone.—W. de L.

Miscellaneous

ABSTRACTS FROM CURRENT LITERATURE

ABSTRACTORS

Isabelo Concepcion, M. D.

Walfrido de Leon, M. D.

Felisa Nicolas-Fernando, M. D.

Carmelo Reyes, M. D.

Necrotizing Arterial Lesions Resembling those of Periarteritis Nodosa and Focal Visceral Necrosis following Administration of Sulfathiazole, by Louis Lichtenstein, M.D., and Leon J. Fox, M.D., *The Amer. Jour. of Path.* 22:665-671, July, 1946.

Many and varied clinical manifestations of toxicity and sensitivity have been reported in the literature following the use of sulfonamides ranging from mild febrile reactions to marked skin sensitivity, focal visceral necrosis, and as most recently reported by Rich, vascular lesions resembling periarteritis nodosa. It appears that of all sulfonamides in current use, sulfathiazole is more often blamed as the chief offender.

The authors are reporting a case they had of a sensitivity reaction developed after local introduction of sulfathiazole into a clean surgical wound, but in which, despite this reaction, sulfathiazole was subsequently given by mouth, on the assumption that the wound had become infected. The patient died about 3 weeks after the operation with manifestations of uremia, evidence of severe hepatic damage, and also hyperbilirubinemia.

Autopsy was done with the following significant pathological changes noted: (1) necrotizing arterial lesions resembling those of periarteritis nodosa in the kidneys, liver, spleen, gallbladder, adrenal glands, uterus, and fallopian tube; (2) focal visceral necrosis in the myocardium, liver, lungs, spleen, gallbladder, pancreas, and elsewhere; (3) severe parenchymatous degeneration of the liver and kidneys; (4) acute fibrinous pleuritis and patchy bronchopneumonia (bilateral).

The changes found in this case have been discussed in relation to those in comparable cases in the literature. This case appears to be the first recorded instance of a fatal hypersensitivity reaction in which the initial sensitization was brought about by the introduction of sulfonamide into a clean surgical wound.

Failure to recognize the clinical manifestations of hypersensitivity to the sulfonamides (fever, chill, a skin eruption of hemorrhagic, vesicular, or bullous character, and failing renal function on or shortly after the seventh day following the administration of sulfonamides) may have serious consequences. Sometimes, as in the case presented, these manifestations may be misinterpreted as indications of infection calling for the administration of sulfonamides with renewed vigor, the effect of which may be likened to pouring gasoline on a fire.

Because sulfathiazole appears to be the principal offender in respect to hypersensitivity reactions, the indiscriminate use of this drug for minor infections or for prophylaxis seems ill advised. For enteral or parental use, sulfadiazine, for instance, is preferable, and for wound implantation, sulfanilamide.

Attention is directed to the fact that the administration of chemicals other than the sulfonamides (e.g., iodine, phenobarbital, and thiouracil) also may be followed occasionally by the appearance of periarteritis nodosa-like lesions.—T. P. P.

Penicillin Facts and Rumors, prepared by the Council on Pharmacy and Chemistry, J.A. M.A. 131:17 (Aug. 24) 1946, p. 1423.

Briefly, the facts concerning the latest developments in penicillin therapy are as follows:

1. Commercial penicillin has consisted of varying mixtures of one or more of the five known fractions, F, G, X, K and dihydro F.
2. Penicillin K is apparently rapidly destroyed or eliminated in the body, and therapeutic levels are not achieved or maintained in the body fluids following ordinary doses.
3. Commercial penicillin now available is predominantly penicillin G, which is known to be effective although some of the penicillin produced for a few months in 1945 may have had relatively less G and more K than previous or subsequent batches.
4. As far as facts are available, penicillins F and X are as active clinically as penicillin G. Further research will be necessary to define their usefulness with preciseness.
5. Since precise methods are not available for the routine determination of the quantities of each fraction in each batch of penicillin, the National Research Council has recommended increased dosage of penicillin as a safety precaution, particularly in the treatment of syphilis, in which the end result of therapy cannot be evaluated for a long time.
6. Although bacteria have been made resistant to penicillin in the test tube, development of clinical resistance has not become a problem. Such an eventuality may be prevented, in part, by giving adequate and not minimum doses of penicillin.
7. All penicillin and penicillin pharmaceuticals currently on the market have been examined and certified as to safety and efficacy by the United States Food and Drug Administration.
8. It is possible that natural or synthetic variations of the penicillin molecule will result in the development of a clinically better penicillin. None better than penicillin G is now available.

While it is realized that the rapid developments now being made in therapeutics make it increasingly difficult for busy physicians to read and evaluate the many scientific articles appearing in hundreds of periodicals, the physician can keep himself informed of the more important developments through a study of the reports of the Council on Pharmacy and Chemistry. Furthermore, the Council office and its personnel are always ready to answer inquiries and furnish information on drugs and therapeutic agents. Physicians by using this service, can allay the fears of their patients who have come to doubt the efficacy of penicillin even when properly used—F. N. F.

Immunization of Diphtheria Carriers, by M. Roshkovskaya and G. Shumakova, *American Review of Soviet Medicine*, New York, 2:5-96 (Oct.) 1945.

The authors studied the problem of immunization of carriers in a large group of school children who were exposed to 15 cases of diphtheria. Immunization and bacteriological studies were preceded by Schick tests. The follow-up lasted six months. The Schick test was positive in 143 of 495 children examined. In the course of six months the positive Schick reactors were examined three times. The first examination was carried out prior to immunization, the second examination one month and the third examination four months after the last vaccination. The proportion of positive cultures remained almost unchanged four months after immunization (23.2 per cent versus 24.7 per cent) but the carrying of virulent bacilli greatly changed. Thus, in the examination prior to immunization 16.3 per cent of the total cultures were of the virulent type in these carriers. One month after immunization there were 4.5 per cent and after four months only 2.8 per cent of the total number of cases. Whether the virulent bacilli are transformed into avirulent ones or whether reinfection with avirulent forms occurs remains a question. Of the 143 children with positive Schick reactions 25.2 per cent, and of 352 Schick negative children 12.8 per cent were carriers of virulent bacilli. The greatest incidence of virulent carriers was found in children with a 1 plus Schick reaction; none were found in highly susceptible (Schick 3 plus) children.—F.N.F.

The Etiology of Trachoma: A Critical Review of Present Knowledge, by J. O. W. Bland, *Brit. J. Ophth.* 29:407 (August) 1945.

The available evidence shows that trachoma is an infectious disease, caused by a non-cultivable, filtrable agent identical with the elementary and initial bodies found in the

Prowazek-Halberstaedter inclusions and having a close relation to the viruses of inclusion blennorrhoea, lymphogranuloma venereum and psittacosis. There is no evidence that this agent possesses an arthropod host.

All four agents resemble the rickettsias in a number of points. They differ from the majority of rickettsias in not possessing an arthropod host. The four agents differ from the typical large virus in possessing initial bodies which stain blue with the Giemsa method and in showing greater pleomorphism, in forming inclusions with a basophilic matrix and in staining with Castaneda's stain.

The author considers that they stand in an intermediary position between the rickettsias and the large viruses and may possibly form a biologic link between them. He prefers to group them with the viruses but to give them a distinctive position as the "Basophilic viruses" on account of the blue staining of their initial bodies and of the matrix of their inclusions, a reaction which distinguishes them from the larger typical viruses, which do not possess blue initial bodies and whose inclusions are acidophilic.

A bibliography is given.—F.N.F.

The Pathology of Sulfonamide Allergy in Man, by R. H. More, M.D., G. C. McMillan, M.D., and G. Lyman Duff, M.D. of the Dept. of Pathology, Pathological Institute, McGill University, Montreal, Quebec. *The Amer. Jour. of Path.* 22: 703-725, July, 1946.

The authors reviewed first the literature on the morphological changes that were attributable to sulfonamide therapy such as liver damage, granulocytopenia, urolithiasis, and lesions in the heart and other organs. In this series, they studied 22 autopsied cases out of 375 sulfonamide-treated patients in which lesions were attributable only to sulfonamides and to no other. Those 375 cases were in turn selected from 2,000 autopsy protocols reviewed for the period from 1940 to 1944. A control series of cases not treated with sulfonamide drugs was established by reviewing 400 autopsy cases from the pre-sulfonamide years of 1930 and 1931.

The lesions encountered in the 22 cases were analyzed individually and then discussed and classified into necrotic, granulomatous, interstitial inflammatory, and polyvascular inflammatory groups, and a small miscellaneous group. These lesions were regarded as severe enough to cause death in 7 cases, were major factors contributing to death in 7 additional cases, and were apparently of negligible importance in the remaining 8 cases. No statistical interpretation of these figures is possible. Among these 22 cases examples of the majority of the commonly reported sulfonamide lesions were found. In addition to these, however, a granulomatous reaction that has been reported but rarely found to be the lesions of highest incidence, occurring in 13 cases. A unique lesion, a splenic trabecular necrosis and inflammation, was found in 6 cases. The evidence that these latter lesions were caused by sulfonamide therapy consists of the lack of other demonstrable causes, their co-existence with recognized sulfonamide lesions and, in the case of the granulomata, their experimental production with sulfadiazine. It was found that all lesions invariably combined necrosis of the tissues involved with activity of the reticulo-endothelial system. This basic similarity of the structural alterations indicated a fundamental pathogenesis common to all of the lesions. The association of all types of lesions described with clinical evidence of sulfonamide hypersensitivity, and the essential identity of these lesions with those produced in animals, by various investigators, by foreign protein sensitization, led to the conclusion that the lesions were always an expression of allergy. While this report is obviously of some interest to the clinician and therapist, they believe that its chief value lies in its relation to the general problem of the pathology of allergy in man, an important and, as yet, relatively unexplored field.—T.P.P.

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