

of the femur. The foregoing careful analysis should point the way to a better treatment of such cases.

I have observed many of the patients so studied in the Laguna Honda Home, and can confirm the results which have been recorded. However, these cases are not a true cross-section of the end-results which were obtained in the San Francisco Hospital, because the patients whose fractures united were discharged, and those in whom union was delayed or absent were sent to the Laguna Honda Home. The authors have emphasized the fact that a good functional result may be found in those fractures showing a firm fibrous union, without demonstrable bony union.

The ideal treatment of intracapsular fractures will combine absolute fixation of the perfectly reduced fragments with early motion of the hip and activity of the patient. Recent advances toward this goal include the Smith-Petersen flanged nail, and the use of multiple Kirschner wires, the insertion of which is guided by radiologic examination at the operating table. In the absence of the equipment and experience that such methods require, it is possible to obtain good bony union in about two-thirds of these cases by means of manipulative reduction followed by the Whitman type of plaster spica cast. Patients treated by the latter method should be turned on the face twice a day, should carry out deep-breathing exercises, and should be given carbon dioxid inhalations during the first week. After six weeks, partial mobilization of the knee is started by the removal of the part of the cast on the posterior aspect of the calf and heel. The hip should be immobilized for twelve weeks or longer, depending upon the radiologic examination, which in all cases should include a lateral film of the neck of the femur as well as the customary stereoscopic anteroposterior views.

✽

E. W. CLEARY, M. D. (490 Post Street, San Francisco). Doctor Mensor has done a thing both courageous and worth while. He has constrained us to face stark reality, helped us to stop "kidding ourselves along," if a slang expression may be permitted.

When facts are thus honestly faced and the futility of miscalled conservative measures revealed, the way is paved for a more adequate therapy.

Fracture of the neck of the femur is a desperate emergency. Mere humans endowed with no supernatural powers may not hope to cope with it in degree of suffering and mortality inherent in a lesion which most frequently appears as part of the terminal experience of an organism near death from senility. Nevertheless, methods have been devised and adequate means found to reduce and internally fix the head fragment to the shaft. Already sufficient experience has been had with these relatively exact and positive measures to demonstrate that they are actually conservative, and that their use reduces suffering and complications, and gives the patient the best possible chance to recover.

Such papers as Doctor Mensor has presented help to lay a foundation of fact upon which we may eventually promote an adequate therapy for this lesion without the consequence that our therapy, because of its positive nature, will bring upon us undeserved blame for the considerable percentage of nonunions, complications and deaths, which are the unavoidable results of the severity of the lesion and the physical debility of the average patient.

✽

DOCTORS MENSOR AND DEWEY (Closing).—The authors wish to thank Doctors McMasters, Haldeman, and Cleary for their discussions of the subject presented.

There are some points in discussion which we believe need elucidating. Doctor Haldeman has stated that these cases do not represent a true cross-section of end-results obtained in the San Francisco Hospital, because all united fractures were discharged and only those in which union was delayed or absent were sent to Laguna Honda Home. We believe this statement is somewhat in error, as the statistics show that the average period of hospitalization in the San Francisco Hospital, before discharge to the Laguna Honda Home, was seventy-four days, and that

the minimum time hospitalized at the San Francisco Hospital was nine days. It is obvious that in an average of seventy-four days, in fractures of this nature it is impossible to determine whether bony union will ensue as a result of the therapy. We do, however, admit that the data is not entirely complete, and it is our intention within the next few months to analyze a similar number of consecutive cases over the same period at the San Francisco Hospital, thus securing definite figures as to the percentage of union obtained in those cases that were discharged directly from the San Francisco Hospital and not seen at the Laguna Honda Home. We also fear that Doctor Haldeman is somewhat too optimistic in his belief that two-thirds of these cases will result in bony union by use of the manipulative reduction and the Whitman type of plaster spica cast.

We heartily agree with Doctor Cleary that the most hopeful means of treatment of this fracture lies in some form of internal splintage which will absolutely fix the fragments. At present we are not completely convinced that the Smith-Peterson nail is the ideal method of treatment, but feel that the use of an autogenous bone peg in fresh cases accomplishes the necessary fixation, at the same time acting as a direct stimulation for osteogenesis.

Doctor McMasters has very rightly called attention to the importance of lateral x-rays in this fracture, and it is our belief, now that this technique is more or less a common practice, that many of the fractures in this series that were reduced by the operator, with apparent possible reduction, would have been given further treatment if a lateral roentgenogram had been made.

CATARACTS FOLLOWING THE USE OF DINITROPHENOL: A SUMMARY OF THIRTY-TWO CASES*

By FRANK H. RODIN, M.D.
San Francisco

DISCUSSION by Warren D. Horner, M.D., San Francisco; Hans Barkan, M.D., San Francisco; Harold F. Whalman, M.D., Los Angeles.

CATARACTS following the use of dinitrophenol have been reported by Boardman,¹ Horner, Jones and Boardman,² Shutes,³ Cogan and Cogan,⁴ Lazar,⁵ Kniskern,⁶ and Allen and Benson.⁷

In this report I shall summarize thirty-two cases of cataracts, following the use of dinitrophenol, which have been observed in the San Francisco Bay region—San Francisco, Oakland and the surrounding towns. The population of this region is about one and one-quarter million.

The information was obtained by communicating with the various ophthalmologists in the San Francisco Bay region, who supplied the necessary data.

No attempt will be made to describe the appearance of the cataracts seen in these patients, as this has been well done in the reported cases.

SUMMARY OF THE DATA OBTAINED

Table 1 summarizes the information obtained. There were thirty-two cases. Only such cases were included in which there were definite clinical data that the cataracts have followed the use of dinitrophenol. All the patients were females. Cogan and Cogan's⁴ first case was the only male patient so far reported.

* From the division of ophthalmology, Stanford University Medical School.

The average age was forty-five years. The youngest was thirty years old and the oldest sixty-seven. Cogan and Cogan's⁴ second patient, and Allen and Benson's⁷ patient were each twenty-five years old.

The average length of time in which dinitrophenol was taken by twenty-nine of the patients was eleven months. A number of the patients did not use the drug continuously, but stopped for some months during the treatment. In calculating the time dinitrophenol was taken, only the actual number of months in which it was taken is included. In Case 1 the patient took the drug during a period of nineteen months, during which time she stopped for eight months.

The length of time dinitrophenol is taken apparently is not a factor in the production of the cataracts. The shortest time dinitrophenol was taken

was three months, and the longest twenty-four months.

In view of the insufficient data available, the amount of dinitrophenol taken and the dosages are not included in this report.

The time of the appearance of the cataracts after the beginning of dinitrophenol treatment is based either on the time when the diminution of vision was first observed by the patient or when the cataracts were first seen by ophthalmologists. Some of these patients had no visual disturbances when the cataracts were first observed, and the cataracts were found in routine eye examinations of patients receiving dinitrophenol.

The average time cataracts were formed after the beginning of dinitrophenol treatment was, for twenty-seven patients, fifteen months.

TABLE 1.—Summary of Thirty-two Cases of Cataracts Following the Use of Dinitrophenol Observed in the San Francisco Bay Region

Case	Patient	Age	Length of Time (Months) Dinitrophenol Was Taken	Formation of Cataract After the Beginning of the Dinitrophenol Treatment (Months)	Formation of Cataract After the Stoppage of the Dinitrophenol (Months)
1	M. L.	37	11	15	4
2	M. M.	65	17	19	--
3	E. A.	50	19	18	--
4	L. L.	37	9	16	7
5	J. P.	30	3	12	9
6	R. R.	44	7	11	4
7	R. H.	45	5	17	12
8	M. B.	56	7	18	11
9	G. H.	36	5	12	7
10	T. W.	38	6	6	--
11	D. B.	38	6	9	3
12	G. B.	43	14	14	--
13	D. R.	63	18	16	--
14	H. H.	44	6	11	5
15	E. G.	39	24	24	--
16	L. B.	41	4	14	10
17	A. T.	43	10	10	--
18	C. H.	53	18	23	5
19	C. W.	42	19	26	7
20	V. O.	45	7	13	6
21	V. M.	54	12	13	1
22	F. W.	60	18	18	--
23	R. B.	32	6	14	8
24	E. E.	33	12	6	--
25	M. P.	35	8	18	10
26	A. S.	36	4	12	8
27	E. B.	37	16	24	8
28	M. L.	46	12	--
29	E. R.	32	13	--
30	M. L.	54	--
31	D. T.	64	--
32	I. R.	67	--
Average		45	11 (29 patients)	15 (27 patients)	7 (18 patients)

TABLE 2.—Average Age of Patients With Cataracts Following the Use of Dinitrophenol Observed in the San Francisco Bay Region.

Ages 30 to 39.....	13 patients
Ages 40 to 49.....	9 patients
Ages 50 to 59.....	5 patients
Ages 60 to 67.....	5 patients
Total.....	32 patients
Average age of the patients.....	45 years

In eighteen of the twenty-seven patients, cataracts did not form till after the drug was discontinued. The average time cataracts formed after stopping the drug was seven months. The shortest time was one month and the longest was twelve months. Only a few of the patients continued to use the drug after there was a loss in the acuity of vision. In Cases 2 and 13, dinitrophenol was used for two months after a loss of vision was noticed. In Case 24, the patient continued to use the drug for six months after she noticed disturbance of vision, claiming that only by the use of dinitrophenol was she able to keep her weight down so that she may be employed in her occupation.

Table 2 gives the number of patients in age groups. Between the ages of thirty and thirty-nine there were thirteen patients; between forty and forty-nine, nine patients; between fifty and fifty-nine, five patients; between sixty and sixty-seven, five patients. In the last age group, the cataracts were differentiated from senile cataracts by their characteristic appearance, their rapidity of growth and maturity, and the fact that these patients were under dinitrophenol treatment. Some of these patients had been seen by ophthalmologists before they began dinitrophenol treatment, and at that time they were found to have no lenticular opacities.

The *Journal of the American Medical Association*⁸ has already warned the medical profession as to the dangers of the use of dinitrophenol. Furthermore, the Council on Pharmacy and Chemistry has rejected dinitrophenol for inclusion in New and Nonofficial Remedies.⁹

Finding thirty-two cases of cataracts, following the use of dinitrophenol, should be sufficient warning to anyone to discontinue the use of this drug until more information is available as to its action on the lens.

SUMMARY

1. Thirty-two female patients with cataracts, following the use of dinitrophenol, are here reported.
2. The average age for the thirty-two patients was forty-five years.
3. The average length of time dinitrophenol was taken by twenty-nine of the patients was eleven months.
4. The average length of time cataracts formed after the beginning of dinitrophenol treatment in twenty-seven of the patients was fifteen months.
5. The average length of time cataracts formed after the stoppage of dinitrophenol in eighteen of the patients was seven months.

6. The use of dinitrophenol should be discontinued until more information is available as to its action on the lens.

490 Post Street.

REFERENCES

1. Boardman, W. W.: Rapidly Developing Cataract After Dinitrophenol, *J. A. M. A.*, 105:108 (July 13), 1935; Rapidly Developing Cataracts After Dinitrophenol, *Calif. and West. Med.*, 43:118-119 (Aug.), 1935.
2. Horner, W. D., Jones, R. B., and Boardman, W. W.: Cataracts, Following the Use of Dinitrophenol: Preliminary Report of Three Cases, *J. A. M. A.*, 105:108-110 (July 13), 1935.
3. Shutes, M. H.: Dinitrophenol, *Am. J. Ophth.*, 18: 752-753 (Aug.), 1935.
4. Cogan, D. G., and Cogan, F. C.: Dinitrophenol Cataract, *J. A. M. A.*, 105:793-794 (Sept. 7), 1935.
5. Lazar, N. K.: Cataract Following the Use of Dinitrophenol, *J. A. M. A.*, 105:794 (Sept. 7), 1935.
6. Kniskern, P. W.: Cataracts Following Dinitrophenol, *J. A. M. A.*, 105:794-795 (Sept. 7), 1935.
7. Allen, T. D., and Benson, V. M.: Late Development of Cataract Following Use of Dinitrophenol About a Year Before, *J. A. M. A.*, 105:795-796 (Sept. 7), 1935.
8. Dinitrophenol and Cataract, *Current Comment*, *J. A. M. A.*, 105:124 (July 13), 1935.
9. Dinitrophenol Not Acceptable for New and Non-official Remedies: Report of the Council of Pharmacy and Chemistry, *J. A. M. A.*, 105:31 (July 6), 1935.

DISCUSSION

WARREN D. HORNER, M. D. (384 Post Street, San Francisco).—Doctor Rodin's excellent analysis covers the largest series of cataracts of this type collected thus far. The previous reports have not included more than three cases from any one observer, and they have been widely distributed throughout the country.

Since much of the early pharmacologic and clinical investigation was carried out at Stanford University Medical School, it is not remarkable that the suspected remote effects of dinitrophenol would be more numerous in this locality. From this clinic more than 1,200,000 capsules of 0.1 gram each were supplied to physicians and patients during the year from July, 1934 to July, 1935. It is estimated that 4,500 patients in California alone were treated during this period, and that 100,000 persons in this country have used the drug since its introduction as a remedy for obesity. In addition to dosage controlled by physicians, about twenty commercial concerns marketed dinitrophenol or mixtures containing it.

Considering the number of people who have taken dinitrophenol under conditions varying from strict supervision to no supervision at all, it is not remarkable that such a potent drug should produce some untoward effects. The ratio of lens changes to the total number of patients taking dinitrophenol is small, probably less than one per cent and perhaps nearer 0.1 per cent. The number of cataracts is not known, but may be estimated at between fifty and one hundred. If one hundred thousand persons took the drug in the first fifteen months, as has been estimated, the incidence of cataract would be less than 0.1 per cent.

It is remarkable that in all of the cases of dinitrophenol poisoning occurring in munition workers in France during the war, and in thousands treated for obesity since, no case of cataract has been reported. One French writer, Dally, "suspects the toxic action of an impurity in the dinitrophenol, very probably dinitronaphthol."

The lens changes following dinitrophenol appear to be due to some deleterious effect on the lens epithelium. The opacities are first noted just beneath the anterior and posterior capsules. When once begun, they proceed steadily without arrestment until the whole lens is opaque. Local treatment, such as hyperemia by hot applications, diionin and subconjunctival injections, or various general measures as diet, forced fluids, calcium salts, or concentrated vitamin C (ascorbic acid) have failed to influence progress.

No damage to any ocular structure except the lens has been reported thus far.

Extraction of such cataractous lenses is done with no more difficulty than other soft cataracts, and visual results following operation have been excellent.

✱

HANS BARKAN, M. D. (Stanford University Hospital, San Francisco).—Of the thirty-two cases mentioned here by Doctor Rodin, I have seen a number, some of them in private practice and some of them in the Stanford University eye clinic. As he says, the amount or the length of time of use, or the age, or the amount of weight lost, seem to make little if any difference as to whether the patients develop lenticular changes. It is an unhappy circumstance that a drug so carefully worked up, and so carefully checked by the very best scientific men and proceedings, should have proved to be one which certain individuals at least cannot take without this acute disturbance of lens metabolism. There must be an individual idiosyncrasy to it. Certainly, of the large number of patients taking it, few developed cataracts, but in such fashion and so typically that there can be no doubt clinically that just those would not have had cataracts at this particular time if they had not been taking the drug. Doctor Rodin deserves great credit in having carefully collected and proved up the data respecting these cases.

✱

HAROLD F. WHALMAN, M. D. (727 West Seventh Street, Los Angeles).—The tabulation of cases by Doctor Rodin conforms in many respects to a similar grouping of nineteen cases which I have had the opportunity to analyze. Some very interesting and significant facts are thereby revealed, and I would like to urge that physicians who have the opportunity of seeing cases of dinitrophenol cataract send brief notes regarding such to those who are interested in making the tabulations.

First of all, the tables indicate that the individuals in this series did not show what would ordinarily be considered an idiosyncrasy for the drug, but rather a very hearty tolerance for dinitrophenol, as evidenced by the fact that the average length of time of ingestion of the drug was eleven months. With the exception of one case, all have been women and relatively obese. In my own series, where weight loss has been included in the study, all showed considerable reduction in weight, varying from fifteen to seventy-six pounds, averaging about thirty-five pounds over a period of time.

As Doctor Rodin has indicated, there seems to be no relation between the amount of drug taken and the formation of cataracts, nor does the discontinuance of the drug before visual symptoms develop alleviate one from the possibilities of later visual disturbance, as evidenced by the fact that cataracts have formed as late as twelve months after discontinuing the dinitrophenol. This is very disconcerting, to say the least, and would seem to indicate that some permanent damage occurs to the structure of the lens, likely an effect on the capsule of the lens affecting its permeability. The subsequent changes then appear to be one of hydrolysis, as the lens becomes gradually swollen and its fibers disintegrated.

Doctor Rodin did not indicate the amount of drug taken by these patients, but in my own series the daily dose did not exceed that recommended by Stockton and his co-workers, an average of from 100 to 500 milligrams per day.

Another point mentioned by Doctor Rodin, but which is not indicated in his tables, is that the rate of development of these cataracts is extremely rapid in comparison with the cataracts we are accustomed to see. Complete maturity may ensue within a week after the onset of visual symptoms, or it may take many months for the complete development of the cataract. The average, however, is about one month. In this respect they behave very much like traumatic cataracts, where the epithelium of the lens is damaged by a penetrating agent followed by immediate opacification of the lens substance as a result of injury to the capsule, when rapid swelling of the lens ensues. Concurrent with this speedy development of lens opacity and the swelling of the lens, there is an increase in the intra-ocular tension of the eye due to blocking of

the iris angle. This may vary from a few points above normal to acute glaucoma.

General practitioners should be on the alert for visual change in patients taking this drug. The earliest signs are those of an increased index of refraction, which can be detected by the ophthalmologist in a change of refraction in the patient's eyes.

To date no form of medical treatment, either general or local, has resulted in arrest of the process once it has started. These cataracts are, however, amenable to surgical treatment, and the visual results in most cases have been reported as good. With the exception of some instances communicated to me by Doctors Hosford and Hicks, the vitreous body has been unaltered in the early stages of cataract development, when such body can be seen with the slit lamp, and after cataract extraction.

I wish to congratulate Doctor Rodin on having obtained a sufficient group of cases from his colleagues to demonstrate certain constant features observed in these patients.

MEDICINE AND SURGERY IN THE FLEET*

By LUCIUS W. JOHNSON, M.D.†
U. S. S. Relief, United States Navy

WHEN your representative asked me to talk to you tonight, he suggested the subject, "Medicine and Surgery in the Fleet," and I have not been able to improve on that suggestion.

WHAT IS THE FLEET?

As a preliminary step in any discussion, it is good logic to agree on the meaning of the terms that are to be used; so, in this case, I think we should get it straight, just what the fleet is. You may think of it as that aggregation of 160 ships and 45,000 men that recently returned from the Pacific maneuvers. But there is a broader conception of it, expressed in the saying that "the fleet is the Navy and the Navy is the fleet." It implies that everyone in the Navy is a part of the fleet, whether his job for the moment be on a ship, at a desk in Washington, or in one of our distant island possessions. Each one plays an essential part in the preparations which make it possible both to move and maintain the fleet in readiness to fight wherever it may be needed.

This broad definition of the fleet gives me great latitude in what I may say. But it also exposes me to certain hazards. On the one hand, is the peril of wearying you with excessive praise of my own outfit. On the other hand, is the danger of putting you to sleep with a dry statistical summary of accomplishments. I will try to steer a careful course, avoiding both of these extremes.

THE SHIP SURGEON A CENTURY AGO

To get a proper slant on this job of being a doctor in the Navy, let us take a brief glance back to the times when the pay of doctors there was small, their equipment meager, and their prestige little greater than that of a guinea-pig in a modern laboratory. An intimate picture of this is contained in Smollett's *Roderick Random*, a vivid delineation based on his own experiences as a

* Read before the Hollywood Academy of Medicine on September 19, 1935.

† Editor's Note.—The author of this article, Lucius W. Johnson, M.D., is a Captain in the Medical Corps, United States Navy, and Senior Medical Officer on the U. S. S. Relief.