COMMON ERRORS OCCURRING IN THE DIAGNOSIS OF TESTICULAR NEOPLASMS AND THE EFFECT OF THESE ERRORS ON PROGNOSIS

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Introduction
Many authors in the past have drawn attention to errors and delay in diagnosis which often occur in patients with testicular neoplasms. This cannot be considered surprising as testicular tumours are rarely seen by most doctors, and the diagnosis of malignancy is not often made in the early stages of the disease. It was considered to be of interest to analyse the initial diagnosis made in a series of patients with testicular neoplasms, and to attempt to assess the importance of any delay occasioned by misdiagnosis. This has been done by correlating errors in diagnosis, and the delay incurred by such errors, with the ultimate fate of the patient.

Material
The initial clinical diagnosis made in 146 patients with primary malignant testicular tumours was noted. In each patient the ultimate diagnosis of testicular neoplasia was confirmed histologically. Where an initial wrong diagnosis had been made, the delay in essential treatment occasioned by such misdiagnosis was assessed from the patient’s case-notes. Those patients still alive who had not yet survived for two years from the time of their orchidectomy were omitted from this study. This involved the omission of nine patients with testicular teratomas and five patients with testicular seminomas. A final total of 132 patients with primary malignant testicular neoplasms were available for consideration.

Results
Initial diagnosis. An initial mistake in diagnosis was made in 59 of the 132 patients. Thus an initial error in diagnosis occurred in 45 per cent of patients with testicular neoplasms.
The more common errors of diagnosis occurring in this series are listed below.

Acute epididymo-orchitis .... 9
Post-inflammatory epididymitis .... 4
Tuberculous epididymitis .... 9
Hematocele .... 6
Hematoma .... 4
Hydrocele .... 6
Inguinal hernia .... 4
Retro-peritoneal sarcoma .... 2
“Backache” .... 3

The remaining twelve patients were labelled with a variety of diagnoses which included hysteria, duodenal ulcer, prolapsed intervertebral disc, gynæomastia and torsion of the testicle.

Comment. In a considerable number of cases where a wrong diagnosis was made initially, the mistake was due to attributing testicular enlargement to trauma or inflammation, and not neoplasia. In certain cases where the primary testicular tumour was small, its presence was overlooked, and the diagnosis was made on signs and symptoms produced by metastatic deposits.

Errors in Diagnosis and Delay in Treatment correlated to Mortality

Table I has been constructed to show the fate of patients with testicular teratomas and seminomas who have had correct and incorrect diagnoses made. The average delay in treatment incurred by misdiagnosis is shown for both dead and surviving patients. All patients who are shown as “alive” have survived their disease for at least two years.

<table>
<thead>
<tr>
<th>Type of Tumour</th>
<th>Correct diagnosis made</th>
<th>Incorrect diagnosis made</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Number of Cases</td>
<td>Alive</td>
</tr>
<tr>
<td>Teratomas</td>
<td>48</td>
<td>23 (48%)</td>
</tr>
<tr>
<td>Average delay incurred by misdiagnosis</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Seminomas</td>
<td>25</td>
<td>24 (96%)</td>
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<tr>
<td>Average delay incurred by misdiagnosis</td>
<td>-</td>
<td>-</td>
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</tbody>
</table>
Comment. Preliminary examination of the figures in Table I would appear to show that those patients who have a correct diagnosis made at the time of their initial examination have a considerably better prognosis than patients in whom treatment is delayed due to misdiagnosis. A statistical analysis of the figures available shows that this is true for those patients with seminomas, as patients diagnosed correctly at their initial examination had a significantly better chance of survival than those patients in whom an error in initial diagnosis occurred ($P = 4$ per cent). In those patients with teratomas, a significant difference was not found between the groups diagnosed correctly and incorrectly ($P = 10$ per cent). Although the normally accepted level of significance ($P = 5$ per cent) was not reached, there is evidence of an improved prognosis in those patients with teratomas who were diagnosed correctly at their initial examination. An increase in the numbers of patients studied might well reduce the significance level to a point which would justify the assumption that correct or incorrect initial diagnosis had a significant bearing on the ultimate prognosis of the patient.

Discussion

Authors such as Dew (1925), Dean (1935) and Scully and Parham (1948) have already drawn attention to the delay in diagnosis which occurs in many patients with testicular neoplasms. Kimbrough and Denslow (1951), in a review of thirty-two testicular tumours, stated that a wrong initial diagnosis was made in fourteen cases, an incidence of 44 per cent. The majority of these cases were treated for epididymitis.

Patton, Hewitt and Mallis (1959), in a review of 510 American Army patients with testicular tumours, analysed the initial diagnosis made by the very large number of different medical officers who had first examined the patients. They reported that in only 28 per cent of cases was the correct diagnosis made initially. In no less than 46 per cent the medical officer did not commit himself to any specific diagnosis, and in 16 per cent the diagnosis of epididymitis was made. In 4 per cent of cases the patients were assured that nothing was wrong. The remaining 6 per cent of cases were made up of miscellaneous diagnoses, such as haematocele, torsion, hydrocele, orchitis, varicocele, hernia and seminal vesicle disease.

Stephen (1960) reported that an error in initial diagnosis was made in 56 per cent of his series of 100 cases of testicular tumours. The more common errors in diagnosis in this series were epididymitis (14 per cent), tuberculous epididymitis (5 per cent), hydrocele (11 per cent), haematocele or haematoma (10 per cent) and inguinal hernia (3 per cent). A further 13 per cent of patients had various diagnoses made such as prolapsed intervertebral disc, retroperitoneal sarcoma, subacute appendicitis, renal calculus and acute intestinal obstruction.

In the present series, an error in initial diagnosis was made in 45 per cent of the patients. In over half these patients the error was caused by attributing testicular swelling to trauma or inflammation. The error in diagnosis in a substantial number of other cases was due to signs and symptoms produced by metastatic deposits arising from a small occult primary tumour in the testicle, which was overlooked at the time of the initial examination. These errors illustrate the importance of examination of the testicles in any male patient complaining of backache, vague abdominal symptoms, gynaeco-
mastia or pain in the chest. Additionally, it is emphasized that in any testicular swelling diagnosed as being of inflammatory or traumatic origin, great care must be taken to exclude the possibility of testicular neoplasm.

The delay in treatment occasioned by misdiagnosis varied from a few days to months. It was apparent, however, that the longer the delay before essential treatment was instituted, the worse the prognosis (see Table I). Delay is of particular importance in patients with testicular teratomas, as these tumours tend to metastasize early via the blood stream. The figures obtained in this study emphasize, once again, the necessity for early and accurate diagnosis, with the minimum delay in treatment, if the prognosis in testicular neoplasms is to be improved in the future.

Summary

The initial diagnosis made in 132 patients with primary malignant testicular tumours has been analysed. Errors in diagnosis occurred in 45 per cent of the patients. The majority of these errors in diagnosis were due to attributing enlargement of the testicle to inflammation or trauma, rather than neoplasia. Errors in diagnosis were also made in a substantial minority of cases where signs and symptoms were produced by metastatic deposits, and the original small tumour in the testicle was overlooked.

In patients with seminomas, the prognosis was significantly better in those who had a correct diagnosis made on initial examination, compared to those patients in whom an error in diagnosis occurred. In patients with testicular teratomas, a significant difference in prognosis was not found between the groups of patients diagnosed correctly and incorrectly. Evidence, however, suggested that some improvement in prognosis was afforded to patients by early correct diagnosis of their testicular neoplasms.

REFERENCES