

with symptoms which were reported to have been those of congestion of the brain. No cough had manifested itself until the day preceding his admission, and his breathing was not affected until the morning.

When admitted, he was in the first stage of the croupy symptoms; the soft palate was coated with exudation. The action of an emetic produced considerable relief to the laryngeal symptoms; but was attended with much depression, although the patient was vigorous, and had presented no indication of failure of strength. The laryngeal symptoms, however, soon returned; they steadily increased in severity; and the child died on the following day.

**POST MORTEM EXAMINATION.** A thick coating of false membrane of considerable consistence, and adhering closely, covered each tonsil, and the edges of the velum, and existed in patches on the posterior surface of the soft palate. The posterior surface of the velum was quite free from ulceration; nor did any ulceration appear beneath the edge of the false membrane in the other part first mentioned; but the investigation was not pursued further, as it was desired to preserve the specimen. The surrounding mucous membrane was somewhat livid. From the fauces the false membrane extended in one continuous and perfectly consistent membrane down the entire œsophagus, becoming thinner as it descended, and ending abruptly at the cardia. It peeled off easily, leaving the mucous membrane, where exposed, perfectly healthy. The interior of the stomach was covered with transparent mucus; but its lining membrane was healthy, excepting that it presented some stellate patches of injected vessels. The lingual surface of the epiglottis was healthy; the laryngeal surface was coated with a dense exuded membrane, and a thinner membrane, of the same nature, covered the interior of the larynx and the entire trachea, gradually fringing off at the bifurcation, and extending only for a short distance into the right bronchus. The bronchial tubes contained only mucus. The surface of the lungs was anæmic and emphysematous; their bases were somewhat loaded with blood. The kidneys appeared healthy, but from necessity were not examined microscopically.

**CASE IV.** C. M., aged 3 years, was admitted in the last stage of laryngeal obstruction. No history of his case was preserved. Mr. Bolton consented to give the child the small chance afforded by tracheotomy; but the patient died before the larynx was opened, and artificial respiration entirely failed to revive him. Permission was only given to remove the trachea, so far as could be accomplished without opening the chest. A thin coating of false membrane covered the interior of the larynx, and the upper inch of the trachea, where it appeared to terminate. The soft palate had been seen to be coated with exudation during life.

**THE WATERS OF VICHY.** The little town of Vichy, made notorious by the healing of its waters, is situated in the department of the Allier, France. Within its compass it has seven mineral acidulated springs, three of which are allowed to have extraordinary properties and qualifications; they are the Grande Grille, l'Hôpital and the Celestine Springs. They are proved to contain, in addition to a number of minor ingredients, carbonate of soda, carbonate of lime, carbonate of magnesia, chloride of sodium, sulphate of soda, protoxide of iron, carbonic acid, etc. The waters of Vichy undoubtedly deserve the first rank amongst the beneficial waters of France. The great preponderance of carbonate of soda which enters into their composition renders them very efficacious in cases of gravel and stone. Their action is marked and rapid upon the urinary organs, causing perspiration by rendering them alkaline, at the same time giving promotion to the general circulation. (*The Chemist and Druggist.*)

## Original Communications.

### ON THE EXTERNAL USE OF THE SOLUTION OF THE PERNITRATE OF MERCURY IN EPITHELIAL CANCER, LUPUS EXEDENS, AND THE INDURATION OF CHANCRE.

By JOHN GAY, F.R.C.S., Surgeon to the Great Northern Hospital, etc.

THIS preparation is, I believe, a concentrated solution of the red oxide of mercury in hot nitric acid, and is said by chemists to have a very strong affinity for ammonia. It is on this account, perhaps, that it exerts so powerful an influence over some of those abnormal tissues of the body which are rich in the elements of that alkali, but comparatively poor in respect of vital power. To this influence I will now especially direct attention, but without claiming any originality either in the practice of employing it, or in the observations which my experience of its power has enabled me to make.

Perhaps the most striking effect of this agent is that produced by its application to *epithelial cancer*. I have now tried it in a considerable number of cases, and can affirm that, so far as this affection is curable by its perfect local eradication, the solution of the pernitrate of mercury can effect a cure. I will give two cases which will serve to illustrate its value and *modus operandi*. I might give many more, but they would be only repetitions of the same account.

Mr. A., aged 52, a farmer, in other respects a most healthy and robust man, asked my advice for a cancerous growth (epithelial) on his lower lip. It seemed to occupy the whole of the edge, but had not extended to the junction of its mucous membrane with that of the jaw. Towards the left corner, it had grown to the size of a very large walnut; and the surface had ulcerated, exuding a thin and slightly offensive discharge. There was an apparent absence of glandular contamination. It was uneasy, and growing steadily, but perhaps not rapidly; the whole having been in existence for about a year and a half. I advised either excision or caustic. The latter was preferred. I need not follow the details beyond stating that I applied the solution of the pernitrate abundantly over the whole of the ulcerated surface, not at all careful to keep the application within its limits. It gave great pain, but only for an hour or two. It had the effect of destroying a layer of the diseased growth, which came away as a slough on the third day. The remedy was applied, or rather, the surface was soaked with the solution, twice a week for a period of six weeks, with the same result after each application. As it destroyed layer after layer of the cancer, so the wound deepened; but at the same time the adjoining tissues closed in by granulation from every point of healthy tissue, as this was stealthily reclaimed from the invasion of the cancerous growth, until at length, *even under the continued application of the agent*, the whole surface threw out healthy granulations, and the wound healed with scarcely a mark, and without loss of healthy structure.

B. V., aged 36, was admitted into the Great Northern Hospital for an affection of the under lip, supposed to be an erectile tumour. It consisted of a large swelling occupying the whole of the lip, of a deep purple colour, elastic, and without any abrasion of surface. The coronary arteries had been tied when the tumour was much smaller, but without any apparent results; for it continued to grow, until at length it became both so unsightly and inconvenient that the patient desired its removal. I removed it in the usual manner, taking

care to include the whole of the diseased in the resected tissue. The hæmorrhage was unusually great; the blood flowing from many small, as well as from the usual larger arteries. The edges of the wound were brought together by pins.

The growth was, to outward appearance, simple erectile tissue;\* but, from the sequel, it will be found to have been also the seat of cancerous elements. On the third day, the two portions of lip had only united at the edge; whilst the remainder of the wound, even the wounds made by the needles, and its alveolar base, had become covered by a fungoid excrescence, which discharged blood and a thin pus; grew rapidly; and left no doubt of its malignant character.

Further cutting was out of the question. I at once applied the solution of the pernitrate of mercury. It was attended with great pain. A considerable slough came away. The application was repeated daily, and with the same results.

Although the growth was rapid, the destructive powers of the agent were still more so; and to my surprise, as well as that of my colleagues, the wound (which now assumed the appearance of a large ulcer) began to contract in size; the healing edge keeping close up to the limits of the diseased growth, and following it as this gave way to the action of the caustic, until cicatrisation became complete, and the patient was discharged well.

The obvious value of this agent lies in its being fatal to the disease, and powerless over the healthy tissues. The one it destroys, whilst it spares the other; and not only so, but it appears to quicken the healing energies of the latter; for the repairing process keeps pace with the speed with which the former comes under its exterminating influence; so that no sooner is the last vestige of the disease gone, but the wound is almost cicatrised.

In the *Guy's Hospital Reports*, Mr. Bryant speaks most favourably of excision in these cases; and I can have no doubt whatever of the conclusion to which that very able and observant surgeon has come on this point; but there are circumstances which give to the caustic method a value which excision does not possess, although I do not claim for it greatly preponderating advantages. There is no loss of tissue by this mode; whereas the whole lip is lost by excision. This might be an advantage; for it may relieve the patient of a part of the face very prone to become the seat of cancer; and to which it may return if the diseased growth alone be removed. On the other hand, the advocates of conservative surgery who with the knife very nearly imitate the caustic, aver that this liability is by no means so great as to constitute an argument in favour of the wholesale, against the limited, removal of the lip-structures.

Again, patients often prefer caustic to the knife; although, as far as pain is concerned, it is, I think, saved by excision:

From epithelial cancer, I go to *lupus exedens*.

Although this affection has been too much looked upon as constitutional, and not admitting of cure but through internal remedies, I can affirm, from repeated experience, that it is curable by means of the solution of the pernitrate of mercury.

The first case in which I tested its powers was that of a lad, aged 18, from Walthamstow, the whole side of whose face had become exceedingly unsightly by this affection in a very severe form. I at first limited the application to a small segment of the ulcer, after carefully freeing the surface of scab and moisture. The effect of the first application encouraged me to bring the whole surface as rapidly as possible under its influence. A few dressings, three days apart from each other, and

the intermediate use of a weak solution composed of Condy's disinfectant and opium, were sufficient to bring about reparative action in the sore, and ultimately its complete cicatrisation.

A young woman, aged 24, suffered for years from *lupus exedens* affecting the skin of the face, over the angle of the lower jaw. I first applied the solution about six weeks since; and have repeated it since about once a week. The sore has cicatrised.

I might give several other cases; but they would be merely repetitions. Suffice it to remark that the remedy does not appear to act in the same manner that it does on epithelial cancer; for it does not destroy the textures with which it comes into contact so suddenly as to produce an eschar. This may, perhaps, be due either to the fact that I have not applied it so vigorously in these, as in the former class of cases; not having found it necessary to do so; or to the greater resistance shown by lupous tissue to the agent; for this tissue differs radically from cancer, in consisting principally of newly formed connective tissue with nucleated cells.

The third form of disease in which I have been in the habit of using this remedy, and that, to a certain extent, satisfactorily, is the *induration of chancre*. I cannot help thinking that the tissue which forms the indurating element differs entirely from that in which it is imbedded. The unaided eye will soon learn to distinguish it by its colour and texture; and sometimes by its slightly overlapping the contiguous healthy tissue; but whether it is altogether a new *quasi-parasitical* growth, or is a vitiation of the natural tissues by which these take on new characters and action, it is difficult to say. At all events, there is diseased structure, and its elements have powers of increase and induration.

There is, unquestionably, much difficulty in ridding parts of this tissue. It will sometimes disappear under a course of mercury, whilst at others it will not. Occasionally, it yields without mercury; whilst, again, it will resist a long course of this remedy, remain for months after it has been given up (the ulcer having healed), and then melt away as though spontaneously. I have seen one of two indurated masses disappear, as well as syphilitic tubercles, on one side of the face, under treatment, whilst the other nodule and the tubercles on the opposite side have remained without any change. There is scarcely anything more embarrassing in practice than the seeming caprices of this morbid element. The question is how best to get rid of it, *i. e.*, most speedily and most effectually. I have found the pernitrate of mercury of the greatest value towards attaining this end. And I cannot but think that at least a plausible inference of some practical value may be drawn from comparing the processes by which epithelial cancer and the induration of chancre are made to disappear before the pernitrate topically applied in the one case, and mercury systematically administered in the other.

In both the effects are, to outward appearance, the same, with the exception of the removal of the chancrous tissue, which is not by masses, as in the case of the cancerous. But this difference does not injuriously affect the analogy; for it may consist simply in that which exists between ulceration and sphacelus; and in this respect the effect of the pernitrate on the chancrous tissue may closely assimilate that which it has upon the tissue of *lupus*. But, returning from this necessary digression, it may be observed that the effects of the two remedies on the two diseases respectively resemble each other, inasmuch as in both, as the disease yields, so the contiguous tissues make themselves obvious by a ring of healthy redness, which follows close upon the retiring base of the disease, until the latter entirely disappears, and granulation closes up the sore. Does not, then, the mercury, as it is brought by the nutritive juices to the comparatively feebly resisting chancre-tissue, act upon it simply as a poisonous agent, destroying it histologi-

\* My colleague, Mr. Price, took it for more minute examination, the results of which I am not yet possessed of.

cally by setting up a species of molecular gangrene; and thus represent the same kind of action as that which is exerted by the pernitrate upon cancerous tissue, only upon a larger scale? And, if so, is not the pernitrate a more ready means of getting rid of the induration than pytalism? I grant the use of the mercury, both in its curative character, as an adjunct, and as a preventive, so far as constitutional syphilis is concerned, to be most important; but would it not be better, in all cases admitting it, to combine the two? I have repeatedly done so, and with the best effect. But it must be remembered, as the destructive powers of the caustic are made to penetrate deeper and deeper into the chancrous mass, it is not necessary, were it possible, to continue it until the whole of the induration is gone, but only until the wound shews unmistakable evidence of healing in; for the cicatrix, in these cases, has a peculiar induration which, at least, resembles that of the diseased tissue, and cannot be got rid of.

### SOME OBSERVATIONS ON THE TREATMENT OF THE IDIOPATHIC INFLAMMATIONS OF THE EYE.

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THE idiopathic inflammations of the eye may, generally speaking, for the purposes of treatment, be divided into three principal groups: those in which the conjunctiva, those in which the cornea, and those in which the deeper structures—sclerotic and iris—are the chief foci of the inflammation. In accordance with this view of the subject, the following will be found the most practical classification of the more ordinary forms of ophthalmia.

#### I.—INFLAMMATIONS OF THE CONJUNCTIVA.

These are characterised by vascularity of the membrane, either general (*e. g.*, in catarrhal and purulent ophthalmia) or local (*e. g.*, in pustular ophthalmia). The vascularity mostly commences in, and is principally situated in, the eye-lids. Conjunctivitis is almost invariably attended with a discharge from the mucous membrane, varying from a simple aqueous (as in the conjunctivitis accompanying scleritis and iritis) to an intensely purulent discharge (as in the purulent ophthalmia of infants). The patient's sensations afford very valuable therapeutic indications. The pain is situated in the eyelids, and is mostly compared to that of grit or sand in the eye, accompanied by a general feeling of heaviness and stiffness about the lids.

The principal forms of conjunctivitis may be distinguished by the nature of the discharge.

(1). *Simple conjunctivitis*: discharge aqueous. (2). *Catarrhal ophthalmia*: discharge muco-purulent, slight or moderate in amount. (3). *Purulent ophthalmia* (including the "ophthalmia of new-born infants" and "gonorrhœal ophthalmia"): discharge purulent, copious, and thick. In all the preceding forms, the discharge appears to proceed from the general surface of the conjunctiva (chiefly its palpebral surface); in (4) *pustular ophthalmia*, the discharge is localised to small pustules, which are generally met with around the margin of the cornea, and are in connexion with a leash of injected vessels.

All the preceding forms of ophthalmia I have now for the last year treated by a method which I first learned at Utrecht, and which, I have no hesitation in saying, is greatly superior to the ordinary mode of treatment adopted in this country.

"If we take the trouble to evert both eyelids in the general run of ophthalmia met with in practice, we shall feel surprised at the large proportion of cases in which

the *palpebral conjunctiva* is the chief seat of the inflammation. Having satisfied ourselves of this fact, the necessary inference is that, if we wish to cure the inflammation, our applications should be directed to the structure primarily affected. Patients are generally told to let the drops 'run into the eye'; that 'if they merely go outside the eye, they will do no good'. To this latter statement might very reasonably be added, 'and will do no harm'—a qualification which does not apply to the former direction. In truth the contact of irritant eye-waters with the sclerotic and cornea is more frequently calculated to do harm than good. *The surgeon should always apply his eye-waters himself*; evert both eyelids, taking care not to separate their edges too widely (otherwise the sclerotic and cornea will be injuriously exposed); then allow a drop or two of the collyrium to flow along the thumb-nail, from a camel-hair brush, down on to the palpebral conjunctiva. Thus all chance of contagion is avoided. After a few seconds, wash the residue of the eye-water carefully off with a second large brush dipped into warm water. The eye-waters I employ are nitrate of silver (grs. x and iv to ʒj), with or without atropine (grs. iv to ʒj). This latter collyrium will be found of signal service in the inflammations associated with irritability of the eye and photophobia." (*Medical Times and Gazette* for Jan. 26th, 1861.)

Most persons will take an exception to all that has hitherto been advanced in the case of the so-called "scrofulous ophthalmia". All I will here observe is, that I do not regard this affection as primarily an inflammation, in the ordinary acceptation of the word; nor do my remarks on treatment apply to these cases, unless associated with conjunctivitis. I regard pure scrofulous "ophthalmia" rather as an hyperæsthetic condition of the retina, as evinced by the photophobia, and consequent spasm of the eyelids. This view is borne out by the nature of the remedies which we find most efficient in its cure: tonics (especially quinine in sufficient doses, and cod-liver oil), alteratives, and certain specific remedies, of which I consider tincture of belladonna as the most certain. The following combination I generally find answer well.

℞ Tincturæ belladonnæ, chloroformi, aa miv; mucilaginis, misturæ ferri comp., aa ʒj.

Scrofulous "ophthalmia" is then, according to my views, but the local manifestation of a constitutional disease; whereas the ophthalmia described above are strictly local affections. That scrofulous "ophthalmia" predisposes to real inflammations of the conjunctiva, I believe; but then this true ophthalmia is a superadded disease, and requires to be treated on the principles before advocated.

#### II.—INFLAMMATIONS OF THE CORNEA.

The inflammations of the cornea are characterised by greater or less opacity of that structure. This opacity is, as a rule, out of all proportion to the vascularity, which an attentive examination will show to precede it. In many cases, the only pathological vessels seen are those which form a sort of fine-toothed-comb corona round the margin of the cornea, on which they encroach about half a line. It is not difficult to understand how a limited degree of vascularity may lead to an extensive opacity, spreading by an infiltrating action through the laminated spongy structure of the cornea. This is often well observed in the opacity of the cornea resulting from granular lids, where a few isolated, straggling vessels are often associated with the highest degree of opacity of that membrane. This "granular corneitis" invades most commonly the upper half of the cornea, on account of the granulations ("trachoma" of Arlt), in which it has taken its origin, being most developed in the upper lid, which, moreover, from the act of winking, under any circumstances, exercises greater friction on the cornea than the under-lid. After a time, secondary