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THERAPEUTIC STRATEGIES FOR CANCER IN LATE ANTIQUITY: EVIDENCE FROM AETIUS OF AMIDA'S MEDICAL COMPENDIUM*

Abstract: This article examines the therapeutic management of malignant disease in the medical compendium of Aetius of Amida, treating the *Tetrabiblon* as evidence for late antique medical practice rather than merely as a repository of inherited theory. Focusing on passages concerning breast and uterine carcinomas, it analyses diagnostic description, surgical criteria, post-operative care, and pharmacological treatment. The article argues that Aetius preserves a coherent therapeutic framework structured around diagnostic classification, anatomical accessibility, prognostic evaluation, and humoral regulation which determine the choice between excision, cauterization, and palliative care. The study further shows that Aetius' pharmacological material, combining botanical, mineral, and animal-derived substances, reflects a practical and symptom-oriented approach to malignant disease. It suggests that late antique physicians possessed a more nuanced practical understanding of tumour progression and therapeutic limits than is often assumed.

Key words: pharmacology; gynaecology; surgery; malignant neoplasms

Non MeSH: history of cancer; late antique medicine; Byzantine medicine; Aetius of Amida; ancient surgery; humoral pathology

Introduction

The earliest Greek medical discussions of cancer appear in the Hippocratic corpus (4th century BCE), where malignant disease is described primarily through clinical observation of abnormal swellings and ulcerative lesions.¹ While these early texts focus on the visible characteristics and progression of such conditions, later authors developed a more systematic understanding of tumorous disease. Galen (2nd century CE) incorporated

* This research was carried out as part of the Project of the Ministry of Science, Technological Development and Innovation of the Republic of Serbia as part of the financing of scientific research work at the University of Belgrade – Faculty of Philosophy (contract number 451-03-34/2026-03/200163).

1 For scholarly discussions of tumours and cancers in Graeco-Roman antiquity, see [1-4]

cancer into his broader theory of pathological swellings (*onkoi*), distinguishing between different forms of abnormal growth according to their consistency, humoral causes, and clinical behaviour. [5]

Despite these theoretical developments, both Hippocratic and Galenic medicine emphasized the practical limits of treatment. [6] Tumours that were accessible and not yet deeply ulcerated might be treated by cautery or surgical excision, whereas deeply seated or advanced lesions were generally regarded as incurable. Physicians therefore distinguished between cases suitable for intervention and those in which treatment would only increase suffering.

Much of the therapeutic knowledge associated with these traditions is preserved in the medical compilations of Late Antiquity. Unlike earlier theoretical treatises, these works were primarily oriented toward clinical practice, assembling surgical techniques, pharmacological recipes, and diagnostic observations intended for practical medical use. Among the most important of these compilations is the *Tetrabiblon* of Aetius of Amida (6th century CE), a sixteen-book collection that preserves a wide range of earlier Greek medical traditions.² [7-14]

Drawing extensively on authorities such as Hippocrates, Galen, Dioscorides, Rufus of Ephesus, Archigenes, and Leonides, Aetius reorganizes this inherited material into a systematic therapeutic manual. His compilation is particularly valuable for the history of ancient surgery, since it frequently transmits fragments of earlier surgical writings that would otherwise have been lost. In the case of breast diseases and cancer, Aetius records operative techniques attributed to Leonides, and therapeutic recommendations associated with Archigenes and other earlier authorities. These passages offer rare insight into ancient surgical practice, including the excision of breast tumours and the treatment of postoperative wounds.

The analysis that follows therefore combines close philological reading of Aetius' terminology with a historical interpretation of the therapeutic procedures described in the text. The sections examined in this study, devoted to breast and uterine cancer and

² Despite its considerable importance for the transmission of late antique medical knowledge, Aëtius' *Libri medicinales* has been translated only in sections. The work circulated widely in the early modern period through the Greek edition printed by Aldus Manutius in Venice (1534) and the Latin translation published by Janus Cornarius in Basel (1546), which ensured its continued use among Renaissance physicians. Modern engagement with the text has largely taken the form of partial translations of individual books. From the late nineteenth century onward, several German scholars produced translations of selected sections, including Leopold Danelius' rendering of parts of Book VII (1889), Julius Hirschberg's translation of the first ninety chapters of the same book (1899), Max Wegscheider's translation of chapters 1–113 of Book XVI (1901), and Heinrich Steinhagen's translation of the entire Book IV (1938). Later contributions include James Ricci's English translation and commentary on Book XVI (1950) (based on the Latin edition of Janus Cornarius), Richey Waugh's English translation of Hirschberg's German version of Book VII (2000), Roberto Romano's Italian translation of parts of Book XVI (2006), and Jean-Marie Jacques' French translation of sections of Book XIII (2007). The most recent substantial contribution is Eric Gowling's annotated English translation of Book I (2014) and Books VI–10, by Ricarda Gäbel. [7,8]

their treatment, illustrate how late antique physicians integrated humoral theory, pharmacology, and surgical intervention in the management of malignant disease, revealing a structured therapeutic logic rather than the mechanical transmission of earlier authorities.

Conceptualizing tumours in Aetius' *Tetrabiblon*

As already noted, the theoretical framework for understanding cancer was articulated by Galen in *De tumoribus praeter naturam*. In this treatise he incorporated malignant disease into his broader theory of pathological enlargements (*onkoi*), understood as bodily masses or swellings that exceed the natural state and impair normal function (ὁρος δὲ τῆς ὑπερβολῆς ἐστὶν αὐτῶν βλάβη τῆς ἐνεργείας). [5 s7.705] Such formations, Galen explains, are “contrary to nature” (*para physin*) and arise either from the accumulation of humours or from the presence of abnormal matter within the tissues. For Galen, deviation from the natural state was not merely quantitative but qualitative, affecting the very condition of the tissues, often through processes of inflammation, induration, and humoral alteration. [5 s7.706] Within this framework, tumorous conditions were classified according to their physical properties, humoral causes, and clinical progression.

While he retained the idea that malignant tumours were associated with an excess of black bile, Galen provided a more detailed account of the mechanisms by which this humour accumulated and became altered within a specific region of the body, particularly in organs rich in blood vessels such as the breasts or uterus. [15-18]

Galen's account is particularly important because it gave later physicians a stable conceptual language for distinguishing among different kinds of swellings according to their consistency, humoral origin, and clinical behaviour. Among these, *skirrhos* designated a hard, indurated lesion, usually associated with thickened or desiccated humours, especially black bile or dried phlegm. [17-19] Such lesions were typically slow-growing and could remain painless for some time, although in advanced stages they might become extremely hard and insensible. Galen notes that when these masses become very large and extremely hardened, they may even lose sensation entirely. [19 s7.735-6] Although not always malignant, scirrhus swellings were sometimes regarded as precursors to more destructive pathological growths.

By contrast, *karkinos* and *karkinōma* referred to malignant tumours in the stricter sense. In the Galenic tradition, these were linked above all to black bile and were recognized by their hardness, irregularity, dark coloration, and the presence of distended veins radiating around the lesion — features that reinforced the traditional comparison between malignant tumours and the legs of a crab. [20 s10.83.14] Precisely because these growths were thought to be deeply rooted in altered humoral matter, Galen regarded them as exceedingly difficult to cure. [16 s5.116, 5.122] Surgical intervention was therefore recommended only in selected cases, when the lesion remained localized and had not yet extensively invaded the surrounding tissues.

Aetius adopts this broad Galenic framework, but his terminology is more differentiated than the modern umbrella term “tumour” might suggest. He distinguishes between several kinds of lesions, including *phymata*, *choirades*, and *karkinoi*. In Gowling’s translation of Aetius First Book and his nuanced medical vocabulary, *phymata* are best understood as “swellings,” a general term covering various tumorous or raised lesions, often inflammatory or suppurative rather than malignant. *Choirades*, by contrast, refer to diseased lymph nodes, especially glandular swellings that may occur in the neck and other regions of the body. Only *karkinoi* correspond to malignant tumours in the strict sense.³ [7]

The same precision appears in Aetius’ use of terms for ulcerative pathology. The word *helkos* (ἑλκος) is most appropriately translated as “ulcer,” denoting a lesion involving destruction of tissue rather than merely superficial irritation. More severe are the *hēlkē kakoēthē* (ἑλκη κακοήθη), which Gowling translates as “malignant ulcers.” [7] Although this expression does not always correspond exactly to malignant neoplasia in the modern sense, it clearly denotes progressive, painful, foul-smelling, and destructive ulcerations with a grave prognosis. In this respect, Aetius preserves an important diagnostic distinction between ordinary ulcers, refractory or invasive ulcerations, and cancer proper.

What emerges from this terminology is a distinctly layered pathology of abnormal growths and lesions. Aetius’ *Tetrabiblon* does not collapse swellings, glandular enlargements, indurations, ulcers, and cancers into a single undifferentiated category. Rather, it reflects a medical taxonomy in which hardness, ulceration, suppuration, anatomical location, and responsiveness to treatment all mattered for diagnosis and prognosis.

The most detailed discussion of malignant disease in Aetius’ *Tetrabiblon* appears in Book 16, devoted to gynaecology, where the author presents extensive descriptions of breast and uterine cancers together with the therapeutic strategies employed in their treatment.

Breast cancer and its surgical treatment

Drawing on earlier authorities, particularly the surgeon Leonides, Aetius of Amida transmits accounts of both the clinical features and the surgical treatment of malignant breast disease. The tumours are described as hard, irregular masses that may become painful, ulcerated, and may be accompanied by dark or livid veins spreading across the surrounding tissue. Such features correspond closely to the diagnostic signs of cancer described in earlier Greek medical texts. Aetius preserves the following description, attributed to Archigenes and Leonides:

³ These lexical distinctions are significant, since they demonstrate that Aetius’ diagnostic vocabulary was considerably more precise than the generalized modern term “tumour” might suggest. In this regard, Eric Gowling’s translation of *Aetius of Amida, Libri medicinales, Book 1* — accompanied by extensive commentary on Aetius’ medical terminology — is particularly valuable. Gowling’s medical training allows him to interpret the technical vocabulary of the text with close attention to its possible correspondence with modern pathological concepts.

On carcinomas in the breasts, according to Archigenes and Leonides, and on the signs of ulcerated carcinomas⁴

The formation of cancerous tumours occurs most frequently in the breasts, and women are more often affected by the disease than men, particularly those who are fleshy and possess large breasts. The ancients called the cancerous ulcer both malignant and beast-like. It was termed “cancerous” metaphorically after the animal crab; for these creatures are rough and harsh in their hardness, and whatever they seize with their claws they hold fast and are difficult to detach. In a similar manner, the cancerous tumour is hard and resistant to pressure, and nodular and for this reason difficult to cure or even incurable. It is also called beast-like and malignant, by comparison with wild and harmful animals; for the disease is difficult to treat and becomes more aggressive under therapy and aggravated by surgical intervention.

There are two principal forms of carcinomas: some are non-ulcerated, while others are ulcerated. The non-ulcerated carcinomas were called hidden by most of the ancient physicians; Philoxenus, however, used the term hidden carcinoma particularly for those occurring in the uterus or the intestines. When the cancer is non-ulcerated, a tumour is found in the breast, varying in size, resistant to pressure, irregular, possessing the harshness of a wild beast. It is firmly rooted in depth, sending its roots far inward and appearing as if bound to the neighbouring veins; the surrounding veins become varicose. In colour it is ash-grey, purplish, and somewhat livid. To the eye it may seem soft, but to the touch it proves extremely hard; therefore, one should not trust the impression given by sight alone. It produces stabbing pains that extend far away, so that by sympathy malignant swellings arise in the armpits, and the pains extend even to the clavicle and the shoulder blade. The signs of an ulcerated carcinoma are as follows: it continually eats away and undermines the tissues in depth and cannot be made to stop. It discharges ichorous fluids more noxious than any poisonous corruption, foul-smelling and abundant. Stabbing pains likewise accompany it, and it is even more aggravated by touch and by medicinal treatments.

Περὶ τῶν ἐν μαστοῖς καρκινωμάτων ἐκ τῶν Ἀρχιγένους καὶ Λεωνίδου, καὶ περὶ σημείων τῶν ἐλκομένων καρκινωμάτων

Ἡ τῶν καρκινωδῶν ὄγκων γένεσις συνεχέστατα γίνεται περὶ τοὺς μαστούς, μᾶλλον δὲ ἀνδρῶν ἀλίσκονται τῷ πάθει αἱ γυναῖκες, εὐσάρκους τε καὶ μεγάλους ἔχουσιν τοὺς τιτθούς. Οἱ δὲ ἀρχαῖοι τὸ καρκινῶδες ἔλκος καὶ κακότηες προσηγόρευσαν καὶ θηριῶδες-καρκινῶδες μὲν κατὰ μεταφορὰν τῶν καρκίνων ζώων, καὶ γὰρ εἰσὶ τραχέα καὶ ἀπηνῆ τῇ σκληρότητι τὰ ζῶα ταῦτα, καὶ εἴ τις λάβοιντο τοῖς χεῖλεσιν εἰσὶ δυσάποσπαστα, παραπλήσιος δὲ καὶ ὁ καρκινώδης ὄγκος, ἀντίτυπος ὑπάρχων καὶ ὀχθώδης καὶ διὰ τοῦτο δυσίατος ἢ καὶ ἀνίατος. θηριώδης δὲ καὶ κακοήθης προσαγορεύεται ἀπὸ τῶν ἀγρίων

4 Unless otherwise indicated, all translations of passages from Aetius of Amida are the author's own translations from the Greek text of the *Libri medicinales*. Published translations have been consulted for comparison, but the wording adopted here reflects the author's interpretation of the original Greek.

θηρῶν καὶ κακοήθων ζῶων, καὶ γὰρ δυσπαθὲς τὸ πάθος καὶ τῇ θεραπείᾳ ἀγριαίνομενον καὶ τῇ χειρουργίᾳ παροξυνόμενον. Δύο δὲ καρκινωμάτων εἰσὶν αἱ ἀνώτεραι διαφοραί, τὰ μὲν γὰρ αὐτῶν ἀνέλκωτα γίνεται, τὰ δὲ ἡλκωμένα. τὰ μὲν οὖν ἀνέλκωτα καρκινώματα κρυπτὰ ὠνό- μασαν οἱ πλεῖστοι τῶν ἀρχαίων, ὁ δὲ Φιλόξενος ἰδίως κρυπτὸν ὠνόμασε καρκίνωμα τὸ ἐν μήτρᾳ ἢ ἐντέροις γινόμενον. Ἀνελκώτου μὲν ὄντος καρκίνου, ὄγκος καταλαμβάνεται ἐν τῷ μαστῷ διαφέρων μεγέθει, ἀντίτυπος, ἀνώματος, ἀγρίου θηρὸς τὴν ἀπήνειαν ἔχων, στερεῶς δὲ διὰ βάθους ἐμπεφυκῶς καὶ τὰς ρίζας πόρρω ἐμβεβλημένας καὶ φλεψὶ ταῖς παρακειμέναις οἷον συνδεδεμένος, καὶ κεκισρωμένης ἔχων τὰς πέριξ φλέβας, τεφρώδης τέ ἐστι καὶ πορφυρίζων καὶ ὑποπέλιος τῇ χρῶα, καὶ τοῖς μὲν ὀρώσι μαλακὸς νομίζεται, τοῖς ἀπτομένοις δὲ σκληρότατος· ὅθεν οὐ πιστευτέον τῇ τῆς ὄψεως δόξῃ· ὁδύνας τε νυγματώδεις καὶ πόρρω που διατεινούσας ἐμποιεῖ, ὥστε κατὰ συμπάθειαν ἐν ταῖς μασχάλαις βουνοῦσας ἐμποιεῖ, ὥστε κατὰ συμπάθειαν ἐν ταῖς μασχάλαις βουβῶνας ἐπανίστασθαι κακοήθεις, διήκουσι δὲ καὶ μέχρι κλειδὸς καὶ ὠμοπλάτης. Ἠλκωμένου δὲ σημεῖα ταῦτα· διαβιβρώσκων αἰεὶ καὶ διὰ βάθους ὑποκάμπτων, στήναι ἀμχανεῖ· ἰχώρας τε ἐκβάλλει παντὸς ἰοῦ θηριώδους πονηρότερους, δυσώδεις τε καὶ πολλοὺς· ὁμοίως δὲ πόνοι νυγματώδεις καὶ τούτῳ συνεδρεύουσι, καὶ μᾶλλον οὗτος παροξύνεται ἐν ταῖς χειραψίαις καὶ ταῖς φαρμακείαις. [10 s6.47]

The text also contains an observation that may correspond to what modern clinical observation would interpret as lymphatic spread. In describing non-ulcerated breast carcinomas, the author notes that “malignant swellings arise in the armpits by sympathy.” Although explained through the ancient physiological notion of *sympatheia*—the interconnectedness of body parts—this description may reflect observation of axillary lymph node involvement in breast cancer.⁵ The passage demonstrates that ancient physicians were capable of recognizing regional spread of malignant disease even without knowledge of the lymphatic system.⁶

5 In Galenic pathology a distinction is drawn between diseases that arise “sympathetically” (*kata sympatheian*) and those that originate in the affected part itself (*idiopathea*). Sympathetic affections were understood as disorders produced by the functional or physiological interconnection of bodily parts, whereby a lesion in one organ could provoke secondary symptoms in another. By contrast, idiopathic diseases arise from causes located within the affected organ itself. Galen further distinguishes between primary affections (*protopatheiai*) and secondary or subsequent affections (*deuteropatheiā* or *hysteropatheiā*), emphasizing that conditions initially produced by sympathy may eventually become established as stable disorders of the affected part. This conceptual framework allowed ancient physicians to explain the apparent spread or persistence of disease within the body without positing a distinct anatomical pathway such as the lymphatic system. [21 s8.30-1]

6 The connection between cancer and the lymphatic system was not fully understood until the early modern period, following the discovery of the lymphatic vessels in the seventeenth century. Lymph as a carrier of cancer material. [22]

Which carcinomas are curable, and which are incurable

In general, carcinomas that are attached to the thorax must be abandoned as hopeless, just as those occurring in the head, neck, back, armpits, or groin; for these too are incurable and, if handled surgically, bring the danger of severe haemorrhage while still not being completely removed. But those that arise at the extremity of the breast (the nipple) are curable, provided they are treated by removal of the affected part.

Τίνα τῶν καρκινωμάτων εὐίατα καὶ τίνα ἀνίατα:

Καθόλου δὲ τὰ συμφυῇ τῷ θώρακι καρκινώματα ἀπαγορεύειν προσήκει, ὥσπερ καὶ τὰ ἐν τῇ κεφαλῇ ἢ τραχήλῳ ἢ νώτοις ἢ μασχάλαις ἢ βουβῶσι, καὶ ταῦτα γὰρ ἀνίατα τὸν ἐν χερσὶ κίνδυνον καθ' αἰμορραγίαν ἐπάγονται μετὰ τοῦ μὴ τελέως ἀναιρεῖσθαι. τὰ δὲ κατὰ τὸ ἄκρον τοῦ τιτθοῦ γινόμενα, εὐίατα συναπτόμενα· στερήσει δηλονότι τοῦ πάσχοντος μορίου. [10 s16.48]

Ancient medical authors were already aware that surgical intervention in cancer could be dangerous and at times counterproductive. While later surgeons such as Leonides described radical excision of breast tumours, earlier medical authorities associated with the Hippocratic tradition warned that intervention could accelerate death. This tension between conservative and surgical approaches reveals an early awareness of the limits of operative treatment in malignant disease.

The passage attributed to Leonides preserves one of the earliest detailed descriptions of surgical intervention for breast cancer in the Greek medical tradition. The procedure combines excision (*ektomē*) with repeated cauterization (*kausis*) in order to control haemorrhage and destroy the remaining diseased tissue. The surgeon first incises the healthy tissue surrounding the tumour and then progressively cuts deeper, repeatedly applying cauterization. This sequence of cutting followed by cauterization reflects a well-established principle in ancient surgery: cautery served both as a haemostatic tool and as a means of preventing the spread of malignant tissue.

Surgical treatment of carcinomas according to Leonides

In cases of carcinomas that are not adherent to the thorax, I customarily employ surgical treatment. The procedure is as follows. The patient is positioned lying on her back. I make an incision in the healthy part of the breast above the carcinoma, and the divided tissue is then cauterized with cauteries until the bleeding is checked by the formation of eschar. Then I cut again, marking out the area while cutting deeply into the breast, and once more I cauterize the cut surfaces. I repeat this process many times, cutting and afterwards cauterizing in order to stop the bleeding, and this bleeding is without danger. After the complete removal of the tumour, I again cauterize the entire area until it becomes thoroughly dried out. The first and second cauterizations are performed in order to stop the haemorrhage, while the final application of the cautery, after the complete excision, is

intended to eradicate the whole disease. At times, however, I am accustomed to operate even without cauterization, when a hard, swine-like swelling forms around the breast, suggesting the early development of a carcinoma. When the disease is of this kind, it is sufficient to perform an excision of the breast beginning from the healthy parts, for in such cases the haemorrhage is not severe.

Χειρουργία καρκινωμάτων ἐκ τῶν Λεωνίδου.

Ἐγὼ μὲν οὖν ἐπὶ τῶν μὴ συμπεφυκότων τῷ θώρακι καρκινωμάτων, εἴωθα χρῆσθαι τῇ χειρουργίᾳ· ἔστι δὲ ὁ τρόπος τοιοῦτος· τῆς πασχούσης ὑπτίας ἐσχηματισμένης, ὑπὲρ τὸ καρκίνωμα διαιρῶ τὸ μέρος τοῦ μαστοῦ τὸ ὑγιές, καὶ τὸ διηρημένον ὑποκαίω καυστηρίοις, ἕως ὅτου ἐσχαρωθέντων τῶν σωμάτων ἐπισχεθῇ ἡ αἰμορραγία· εἴτα πάλιν τέμνω, περιχαράσσω ἅμα καὶ βαθυτομῶν τὸν μαστόν, καὶ πάλιν τὰ τετμημένα καίω· καὶ πλειστάκις τοῦτο ποιῶ τέμνων καὶ μετὰ ταῦτα καίων πρὸς ἐποχὴν τῆς αἰμορραγίας, καὶ ἔστιν ἀκίνδυνος ἡ αἰμορραγία αὕτη. Μετὰ δὲ τὴν τελείαν ἀποκοπὴν πάλιν ἐπικαίω τὰ μέρη τὰ ὅλα ἕως ἀναξηρασμοῦ, τὸ μὲν γὰρ πρῶτον καὶ δεύτερον πρὸς τὴν τῆς αἰμορραγίας ἐποχὴν, ἔσχατον δὲ μετὰ τὴν τελείαν ἀποκοπὴν τὰ καυτήρια προσάγειν πρὸς τὴν τοῦ πάθους ὅλου ἀνασκευὴν· εἴωθα δὲ ποτε καὶ χωρὶς καύσεως ἐνεργεῖν, ταν ὄγκος γένηται περὶ τὸν μαστόν χοιρώδης, μελετῶν τὴν τοῦ καρκινώματος γένεσιν. Τοιοῦτου τοίνυν ὄντος τοῦ πάθους, ἔξεστιν ἀρκεσθῆναι τῇ ἀπὸ τῶν ὑγιῶν μερῶν ἐκτομῇ τοῦ μαστοῦ, οὐδὲ γὰρ σφοδρὰ γίνεται ἐπὶ τῶν τοιούτων αἰμορραγία [10 s16.49]

Particularly important is the emphasis on removing the tumour from the healthy tissue, which resembles the later surgical principle of removing diseased tissue together with surrounding healthy margins. Leonides also distinguishes cases in which the tumour is not firmly attached to the thoracic wall, considering these more suitable for surgical treatment. Tumours adherent to deeper structures were generally regarded as inoperable, largely because of the danger of severe bleeding and the difficulty of complete removal.⁷

A related surgical approach appears in the discussion of breast abscesses, [10 s16.43] which provides valuable insight into operative techniques applied to pathological lesions of the breast. When conservative treatments fail and the inflammation progresses to suppuration, the text recommends surgical intervention.

Putrefied tissue may be excised, but particular care is advised in the region near the nipple: the affected area should be removed through a crescent-shaped incision in order to expose the depth of the abscess while preserving the nipple itself. The preservation of the nipple is explicitly justified—among men for aesthetic reasons and among women both for appearance and for the continued secretion of milk. After the procedure the wound must be carefully packed, avoiding excessive pressure in order to prevent fistula formation, and the subsequent treatment includes dressings that promote suppuration

⁷ A similar distinction between operable superficial lesions and deeply rooted or adherent tumours can also be observed in earlier surgical discussions preserved in Galen and later summarized by Paul of Aegina, suggesting that this anatomical criterion formed a broader principle within the Greek surgical tradition.

and cleansing of the wound. Although the passage concerns abscesses rather than carcinomas, it illustrates the broader surgical principles governing breast operations in ancient medicine, including selective excision of diseased tissue, anatomical caution around the nipple, and systematic post-operative care.

Leonides [10 s16.44] also discusses one of the most frequent complications following surgical treatment of breast lesions: the formation of fistulas. According to the text, fistulas may arise after the rupture of an abscess or after surgical intervention when the wound is poorly treated. In most cases these fistulous tracts remain confined to the soft tissues of the breast rather than extending to bone. Treatment initially relies on topical medication, but in chronic cases surgical intervention is again required: the tract of the fistula must be opened with a probe, incised along its entire course, and all hardened or callous tissue removed. Only after this excision should cleansing and healing plasters be applied. This passage illustrates that ancient surgeons were well aware of postoperative complications and developed systematic strategies combining pharmacological treatment with secondary surgical correction.

Care after excision or cauterization

After excision, when cauterization has not been employed, we apply agents that promote bleeding (to drain the wound), followed by treatment that produces suppuration and the subsequent care intended to dry the lesion. When cauterization has been used in the surgery, however, we apply on the other occasions a poultice of plantain, or knotgrass, or finely ground sesame. Sometimes we mix one of the aforementioned substances with bread, and over the poultice we place a cloth soaked in water. A mixture of milk and honey applied with lint removes very well and painlessly the eschars produced by the cautery.⁸ After the treatment described above, the patient should be kept resting in a warm room, for all cooling is harmful to the condition, especially during the time when the ulcers are being cleansed, since it provokes spasms. On the second or third day, after loosening the dressing, we pour lukewarm water over the wound and apply a poultice of boiled lentils with a very small amount of honey, because honey is irritating. Over this we place leaves of vine or lettuce, and apply a suitable bandage, continuing this treatment until the eschars fall away. After the eschars have fallen, we use lint dressings, but we avoid stronger medicines and fatty substances, since these may cause the disease to recur. For this reason, I usually mix rose oil with woman's milk or donkey's milk, soak the lint in this mixture, and apply it to the wound, covering it with an outer protective dressing soaked in the same preparation. The bandage should be simple and light, since the weight of many cloths is harmful in such cases. During the stage of suppuration, the rose oil should predominate; during the cleansing of the wound, the milk should be used in greater quantity. If the condition requires it, a poultice of melilot mixed with rose oil and water, or with woman's

⁸ Eschar is a thick, dry, black or brown layer of dead tissue (necrosis) that forms over severe wounds, burns, infections, or pressure ulcers, acting as a protective barrier.

milk, may be applied over the lint dressings. Cerates and elaborate poultices, however, are harmful in such cases. If a drying agent is required, finely washed and thoroughly dried pompholyx ash should be sprinkled on the wound, or cadmia that has been calcined three times, quenched in rose oil, then washed and carefully dried. During the course of treatment, the patient must abstain from wine, from hard-to-digest foods, and from cold drinks. When the ulcer is progressing toward healing, nothing should be neglected; rather, the whole condition of the body must be strengthened and directed toward good nourishment through wholesome foods, exercise, swinging therapy, and the rest of the restorative regimen.

Μετὰ τὴν ἐκτομὴν ἢ καὺσιν ἐπιμέλεια

Μετὰ δὲ τὴν ἐκτομὴν καύσεως μὴ δοκιμαζομένης, διαμώτῳσιν προσλαμβάνομεν καὶ τὴν ἀκόλουθον πνοποιὸν θεραπείαν καὶ τὴν λοιπὴν ἐπιμέλειαν ἀναζητεῖν ἐπαγγελλομένην· καύσεως δὲ ἐν τῇ χειρουργίᾳ δοκιμαζομένης, ἐπὶ μὲν τῶν ἄλλων χρώμεθα καταπλάσματι ἀρνογλώσσου ἢ πολυγόνου ἢ σησάμῳ λείῳ, ἐνίοτε δὲ καὶ ἐντὸς τοῦ ἄρτου μίγνυμένῃ τινὶ τῶν εἰρημένων, ἔξωθεν δὲ τοῦ καταπλάσματος ὀθόνιον ὕδατι βεβρεγμένον ἐπιτίθεμεν. καλῶς δὲ καὶ πλάσματος ὀθόνιον ὕδατι βεβρεγμένον ἐπιτίθεμεν. καλῶς δὲ καὶ ἀνωδύνως ἀφίστησι τὰς ἐκ τῶν καυστήρων ἐσχάρας, γάλα μέλι προσλαβὼν καὶ διὰ τῶν μοτῶν προσαγόμενον, μετὰ δὲ τὴν εἰρημένην ἐπιμέλειαν κατάκλεισις δοκιμαζέσθω ἐν οἴκῳ θερμῷ· πᾶσα γὰρ ψύξις βλαβερὰ τῷ πάθει καὶ μάλιστα ἐν τῷ τῆς ἀνακαθάρσεως τῶν ἐλκῶν καιρῷ, σπασμὸν γὰρ ἐρεθίζει. Τῇ δὲ δευτέρᾳ ἢ τρίτῃ λύσαντες, καταντλήσωμεν ὕδωρ χλιαρόν, καταπλάττοντες φακῷ ἐφθῷ μετὰ μέλιτος πάνυ ἐλαχίστου διὰ τὸ ἐρεθιστικὸν τοῦ μέλιτος, ἔξωθεν δὲ φύλλα ἀμπέλου ἢ θριδακίνης ἐπιτιθέντες ἐπιδέσῃ οἰκείῳ χρώμεθα καὶ τούτῳ ἐπιμένομεν ἕως ἐκπέσωσιν αἱ ἐσχάραι. Μετὰ δὲ τὴν τῶν ἐσχάρων ἔκπτωσιν τῇ διαμώτῳσιν χρώμεθα, παραιτούμεθα δὲ ἐπὶ τούτων τὰ δριμύτερά τῶν φαρμάκων καὶ τὰ λιπαίνοντα, εἰς ἀνάμνησιν γὰρ ταῦτα ἄγει τὸ πάθος. διόπερ εἴωθα γάλακτι γυναικείῳ ἢ ὄνείῳ ρόδινον ἔλαιον προσπλέκειν, καὶ τούτῳ τοὺς μοτοὺς βρέχειν καὶ προστιθέναι κατ' αὐτῶν ἔξωθεν μοτοφύλακα τῷ αὐτῷ βεβρεγμένον, καὶ ἐπίδεσιν καὶ ἀπλὴν καὶ κούφην παραλαμβάνειν, ὃ γὰρ τῶν πολλῶν ὀθονίων φόρτος ἐπὶ τούτων βλαβερὸς. Καὶ ἐν μὲν τῷ τῆς πνοποιήσεως καιρῷ πλεῖον ἔστω τὸ ρόδινον, πρὸς δὲ τὴν ἀνακάθαρσιν τὸ γάλα πλεοναζέτω· ἐὰν δὲ κατεπίγῃ, ἔξωθεν τῶν μοτῶν καταπλάσματι χρήσθω μελιλώτων μετὰ ροδίνου καὶ ὕδατος ἢ γάλακτος γυναικείου καὶ ἐπιτιθέσθω, τὰ γὰρ κηρώματα καὶ περιέργα καταπλάσματα ἐπὶ τούτων βλαβερὰ. εἰ δὲ ξηρῶν χρεια γένοιτο, σποδὸς πομφόλυγος ἀκριβέστατα πεπλυμένη καὶ ἐξηραμένη ἐπιπαττέσθω, ἢ καδμία τρίς κεκαυμένη καὶ ἐσβεσμένη ροδίνῳ, ἔπειτα πεπλυμένη καὶ ἀκριβέστατα ἐξηραμένη· ἀπεχέσθω δὲ κατὰ τὸν καιρὸν τῆς θεραπείας οἴνου καὶ τῶν δυσπεπτικῶν τροφῶν καὶ ψυχροποσίας. Τῆς δὲ ἐλκώσεως εἰς ἀπούλωσιν ἀγομένης, οὐδὲν κατὰ ἀμελεῖν ἀλλὰ ῥωννύειν τὴν ἄπασαν ἔξιν τοῦ σώματος καὶ εἰς εὐχυμίαν τρέπειν, δι' εὐχύμων τροφῶν καὶ γυμνασίων καὶ αἰώρας καὶ τῆς λοιπῆς ἀναληπτικῆς ἀγωγῆς. [10 s16.50]

Post-operative care in Aetius' treatise also demonstrates a structured regimen designed to manage the wound environment. After excision, the wound was treated sequentially with dressings that promoted bleeding, then suppuration, and finally drying of the lesion. Various poultices made from plantain, knotgrass, sesame, lentils, and honey were applied, while milk-based dressings and rose oil were used to soften eschars and encourage healing. These preparations combined plant-based pharmacology with mineral agents commonly used in ancient wound management. Particular attention was given to bandaging, temperature control, and dietary regulation during recovery.

Furthermore, pompholyx and cadmia were metallurgical by-products rich in zinc compounds, most likely zinc oxide. These substances were widely employed in ancient pharmacology for their drying and astringent properties.⁹

Although ancient physicians lacked any concept of microbial infection, the combination of cauterization, drying agents, and honey-based dressings may inadvertently have produced mild antiseptic effects.

Uterine cancer

The clinical picture described by Aetius is strongly suggestive of a condition consistent with cervical carcinoma in modern medical terminology. The combination of a hard cervical mass, ulceration visible through the speculum, foul-smelling discharge, persistent bleeding, and severe pelvic pain strongly suggests that ancient physicians were observing malignant cervical tumours. Although the anatomical and pathological mechanisms of cancer were unknown, the careful clinical descriptions demonstrate a high degree of empirical diagnostic observation.

On carcinomas of the uterus, according to Archigenes

Among cancerous tumours, some are non-ulcerated, while others are ulcerated, as has already been stated in the section concerning the breasts. The signs of non-ulcerated carcinomas are as follows: a tumour is found around the mouth (cervix) of the uterus, hard, resistant to pressure, uneven and nodular; in colour it appears wine-lees-like, without redness, somewhat livid. It produces severe pains extending to the groins, the lower abdomen, the hypochondrium, and the loins. It reacts irritably to touch and to more aggressive medicinal treatment. When the carcinoma is ulcerated, the tumour and hardness remain accompanied by similar pain; but the ulcerated tissues appear eroded, excavated, and irregular when examined through the speculum. Most of them are foul, rugged; and even those that seem cleansed appear whitish, hideous, livid, wine-lees-coloured, and without redness, discharging blood. From the ulceration there flows continuously a thin, watery ichor, dark, fiery, and foul-smelling; for the female organs are especially prone to abundant

⁹ Modern research confirms that zinc oxide possesses antimicrobial activity and promotes the wound-healing process, suggesting that some of these treatments may have had genuine therapeutic effects despite the absence of microbiological theory.

discharge. The accompanying symptoms of the diseased uterus have already been described in the section on inflammation. The condition of carcinoma is incurable, as Hippocrates says. Therefore, the care appropriate for such cases should be mild—capable of soothing, comforting, and alleviating pain. Sitz-baths should be made with decoctions of fenugreek and mallow, and with the substances mentioned previously, and similar poultices should be applied. During acute attacks, mallow or marshmallow boiled in honeyed water until softened is very soothing; it should then be mashed together with bread and mixed with a little rose oil. A poultice made of figs, melilot, and rue is also useful; or boil the flesh of dates in sweet wine, mash it, and apply it; and use egg yolks. Alternatively, crush and sift poppy heads and apply them with the juice of knotgrass, or of lettuce, or coriander. Or grind the tender leaves of nightshade with woman's milk and apply them. Or mix the nightshade with rose cerate, grind it thoroughly, pour in a little cold water gradually, and use it. Likewise, grind mallow leaves with woman's milk and mix them with rose cerate. These remedies should be used during periods of exacerbation; afterwards a cerate should be applied, prepared with rose oil, or quince oil, or oil of vine flowers, or myrtle oil, together with dates boiled in sweet wine; or with preparations made from eggs or from barley, such as we also use for burns. Particularly suited for malignant conditions appears to be the deposit found in bronze-workers' hot-water vessels. This deposit is heated among glowing coals until thoroughly red-hot, then ground finely and mixed with rose cerate. These applications are placed externally in the vagina near the mouth of the uterus. Into the uterus itself one should inject warm woman's milk or donkey's milk, or the gently warmed juice of plantain, especially when the ulcer is bleeding, or the juice of knotgrass with a little frankincense. Pessaries made of saffron, woman's milk, a little opium, and hyssop also provide relief. Of all remedies, however, the most effective—also used for diseases of the rectum—is the following: washed litharge, male frankincense, wool grease (*oesypum*), fresh pork fat, and fresh butter in equal amounts (about two ounces each), with four ounces of rose oil. The preparation should be stored in a lead container; if it dries, it should be moistened with rose oil. Archigenes himself says: "I ground the litharge with one cotyle of lettuce juice, and after adding the consistency of honey I combined it with the melted ingredients." I also use similar remedies prepared for rectal conditions. The preparation written above, made with wine, is also excellent for corrosive lesions of the breasts, together with tanning sumac, cypress cones, galls, and cassia; dissolve them in woman's milk or donkey's milk and use.

The philosopher's remedy for carcinomas in the uterus

Burn three or five river crabs (an odd number) on hot coals; then grind them with henna (kyprinos) and apply the preparation with a feather.

Περὶ καρκινωμάτων ἐν μήτρᾳ, Ἀρχιγένους

Τῶν καρκινωδῶν ὄγκων τὰ μὲν ἀνέλκωτα ἐστὶ, τὰ δὲ ἡλκωμένα, καθὼς ἐν τῷ περὶ μαστῶν τόπῳ προεῖρηται. τῶν μὲν οὖν ἀνελκῶτων καρκινωμάτων ἡ σημείωσις ἦδε· ὄγκος

εύρίσκεται περί τὸ στόμα τῆς μήτρας σκληρὸς, ἀντίτυπος, ἀνώμαλός τε καὶ ὀχθῶδης, χροιά δὲ τρυγῶδης, ἀνερευθῆς, ὑποπέλιος, πόνους ἰσχυροὺς ἐμποίων, εἰς βουβῶνας διήκων καὶ ὑπογαστρίον καὶ ἥτρον καὶ ὄσφυν· ἀγανακτεῖ δὲ πρὸς τὰς χειραψίας καὶ τὴν ποικιλω-τέραν φαρμακείαν. Ἠλκωμένου δὲ ὄντος τοῦ καρκινώματος, ὁ μὲν ὄγκος καὶ ἡ σκληρία περιωδυνία παραπλησίως συνεδρεύει, διαβεβρωμένα δὲ καὶ ἀνεσκαμμένα καὶ ἀνώμαλα τὰ ἠλκωμένα σώματα διὰ τῆς διόπτρας θεωρεῖται. καὶ τὰ μὲν πλεῖστα αὐτῶν ἐστὶ ῥυπαρά, ὀχθῶδη δὲ, λευκανθίζοντα καὶ εἰδεχθῆ τὰ δοκοῦντα κεκαθάρται, πελία τε, τρυγῶδη, ἀνερευθῆ, δίαυμα φέρεται. ἐκκρίνεται δὲ ἀπὸ τῆς ἐλκώσεως διηνεκῶς μὲν ἰχώρ λεπτός ὕδα- τώδης, μέλας, καὶ πυρῶδης, καὶ δυσώδης· εὐρευμάτιστοι γὰρ ἰδίως οἱ γυναικεῖοι τόποι τυγχάνουσι. τὰ δὲ παρεπόμενα τῇ πασχούσῃ μήτρᾳ σημεῖα προεῖρηται ἐπὶ τῆς φλεγμονῆς. ἀνίατος δὲ ἐστὶν ἡ τοῦ καρκινώματος διάθεσις, ὡς Ἴπποκράτης φησὶν. Ἐπιμέλεια τοίνυν ταύταις ἀρμόζει κούφη καὶ παρηγορεῖν καὶ πρᾶννεν δυναμένη· ἐγκαθίσματα μὲν διὰ τήλεως καὶ μαλάχης ἀφεψήματος καὶ τῶν πλειστάκις προορηθέντων, καὶ καταπλάσματα παραπλησία· λίαν δὲ παρηγορεῖ ἐν τοῖς παροξυσμοῖς μαλάχῃ ἢ ἄλθαία ἐν μελικράτῳ ἐψηθεῖσα μέχρι τακερώσεως, καὶ συλλειομένη ἄρτω καὶ ὀλίγῳ ῥοδίνῳ μολυνομένη, καὶ τὸ δι' ἰσχάδων καὶ μελιώτων καὶ πηγάνου κατάπλασμα, ἢ φοινίκων σάρκας ἐψήσας ἐν γλυκεῖ καὶ συλλεάνας ἄλειφε, καὶ ὧν λεκίθους χρῶ· ἢ κωδύας κόψας καὶ σήσας μετὰ χυλοῦ πολυγόνου, ἢ σέρεως ἢ κορίου χρῶ ἢ στρύχνου τὰ ἀπαλὰ φύλλα λεάνας μετὰ γάλακτος γυναικεῖου προστίθει· ἢ κηρωτῇ ῥοδίνῃ ἀναλαβὼν τὸν στρύχνον, λέαινε καὶ ἐπίχεε κατὰ βραχὺ ψυχρὸν ὕδωρ, καὶ χρῶ· ἢ μαλάχης φύλλα λεάνας μετὰ γάλακτος γυναικεῖου, καὶ ἀναλαβὼν τῇ ῥοδίνῃ κηρωτῇ χρῶ. ταῦτα μὲν οὖν ἐν ταῖς περιόδοις, μετὰ δὲ ταῦτα κηρωτῇ ἐπιρριπτέσθω διὰ ῥοδίνου ἢ μηλίνου ἢ οἰνανθίνου ἢ μυρσινίνου μετὰ φοινίκων ἐν γλυκεῖ ἐφθῶν, ἢ τῷ δι' ὧν ἢ τῷ διὰ τῶν κριθῶν, οἷς καὶ ἐπὶ τῶν πυρκαύστων χρώμεθα· ἰδίως δὲ συμπεφωνηκέναι δοκεῖ ταῖς κακοήθαις τὸ διὰ τῆς εὐρισκομένης ἐν τοῖς χαλκείοις τοῦ θερμοῦ ὕδατος ὑποστάθμης. Ἐγκρυπτομένη δὲ αὕτη ἡ ὑποστάθμη ἄνθραξι διαπύροις, μέχρις ἂν διάπυρος γένηται, λειοτριβεῖται καὶ ἀναλαμβάνεται κηρωτῇ ῥοδίνῃ. Ταῦτα μὲν οὖν ἔξωθεν προστίθεται τῷ κόλπῳ παρὰ τὸ στόμα τῆς ὑστέρας, εἰς αὐτὴν δὲ τὴν μήτραν ἐγγέειν προσήκει γάλα γυναικεῖον ἢ ὄνειον θερμὸν, ἢ ἄρνογλῶσσου χυλὸν προσηνῶς κεχλιασμένον, καὶ μάλιστα ὁπότεν αἰμορραγῇ τὸ ἔλκος, ἢ χυλὸν πολυγόνου μετὰ βραχείος λιβάνου. παρηγοροῦσι δὲ καὶ πεσσοὶ οἱ διὰ κρόκου καὶ γυναικεῖου γάλακτος καὶ ὀπίου ὀλίγου καὶ ὑσώπου σκευαζόμενοι. Πάντων δὲ ἄμεινον ἐνεργεῖ, ᾧ καὶ πρὸς τὰς ἐδρικὰς διαθέσεις χρώμεθα, ἔστι δὲ τοῦτο· λιθαργύρου πεπλυμένου γοστ ἦτοι οὐγ. στ. λιβάνου ἄρρενος, οἰσύπου, στέατος χοιρείου προσφάτου, βουτύρου νεαροῦ ἀνὰ γοβ ἦτοι οὐγ. β. ῥοδίνου γοδ ἦτοι οὐγ. δ. ἀποτίθεται δὲ τὸ φάρμακον ἐν μολυβδίνῃ πυξίδι, ξηραίνόμενον μέντοι ὑγραίνεται ῥοδίνῳ ἐγὼ δὲ φησὶν Ἀρχιγένης τὴν λιθάργυρον ἐλείψω σέρεως χυλῷ κοτύλῃ α, καὶ μέλιτος πάχος προσλαβοῦσαν ἀνέλαβον τοῖς τηκτοῖς. χρῶ δὲ καὶ τοῖς ὁμοίοις ἐδρικοῖς φαρμάκοις· κάλλιστον δὲ καὶ πρὸς τὰς τῶν μαστῶν ἀναβρώσεις τὸ προγεγραμμένον δι' οἶνου σκευαζόμενον, καὶ ῥοῦς βυρσοδεψικὸς, καὶ κυπαρίσσου σφαῖρα, καὶ κηκίδες καὶ κασία, ἀνέσας δὲ αὐτὰ γάλακτι γυναικεῖῳ ἢ ὀνείῳ χρῶ.

Τοῦ φιλοσόφου πρὸς τὰ ἐν μήτρᾳ καρκινώματα

Καρκίνους ποταμίους τρεῖς ἢ πέντε μόνον ἄζυγας ἐπ' ἀνθράκων καύσας, λείου μετὰ κυπρίνου καὶ διάχριε πτερῶ. [10 s16.109]

The passage is particularly noteworthy for its reference to direct visual examination through a speculum (διόπτρα), which allowed the physician to inspect the ulcerated surface of the cervix. This suggests that late antique physicians relied not only on symptoms but also on direct visual observation in diagnosing uterine carcinoma. The text distinguishes clearly between non-ulcerated carcinomas, characterized by a hard nodular mass around the cervical opening, and ulcerated carcinomas, where the tissues appear eroded, irregular, and excavated. Such descriptions demonstrate that late antique physicians relied not only on symptoms but also on direct visual inspection of the cervix, suggesting a relatively sophisticated level of gynaecological examination.

Equally important is the therapeutic approach, which combines external applications, vaginal pessaries, and intrauterine injections. Substances such as woman's milk, donkey's milk, plantain juice, and knotgrass are introduced directly into the uterus, while soothing poultices and cerates are applied to the vaginal canal. This layered treatment strategy reflects an attempt to manage both the local ulceration and the associated pain and discharge.

Plantain (*Plantago major*), one of the key ingredients in these preparations, was widely valued in ancient medicine for its astringent and drying properties. The leaves were believed to be effective when applied as poultices for malignant wounds, elephantiasis, rheumatic conditions, and foul ulcers. They were also thought to stop bleeding and were recommended for a variety of inflammatory and ulcerative conditions, including carbuncles, skin eruptions, and chronic wounds. In addition, plantain was used for bites, burns, glandular swellings, and fistulas, especially when applied as a poultice with salt. When taken internally after boiling with salt and vinegar, it was considered beneficial for dysentery and abdominal pain, while moderate quantities were also administered against excess phlegm following a period of dietary abstinence. [23 s2.126]

A comparison with earlier gynaecological authors shows that Aetius preserves and expands a diagnostic tradition already present in Greek medicine. Soranus of Ephesus, writing in the second century, also describes ulcerative diseases of the uterus accompanied by pain, discharge, and progressive tissue destruction. [24] Aetius, however, provides a more explicit description of the tumour itself and of its visual appearance when examined with a speculum, indicating a growing attention to the morphological features of gynaecological disease in late antique medicine.

Despite this detailed clinical awareness, the prognosis remained extremely pessimistic. Following the Hippocratic tradition, Aetius states unequivocally that carcinoma of the uterus is incurable. Surgical intervention was not attempted, largely because the tumour was believed to penetrate deeply into the surrounding tissues and because

operative procedures in the pelvic region carried a high risk of fatal haemorrhage. As a result, treatment was primarily palliative, aimed at reducing pain, soothing inflamed tissues, and controlling the corrosive discharges associated with ulcerated tumours.

In this respect, the therapeutic strategies recommended by Aetius differ fundamentally from those used for breast cancer. Whereas tumours of the breast could occasionally be treated surgically through excision and cauterization, uterine carcinomas were managed conservatively through topical medications, pessaries, and soothing applications. This contrast further illustrates the structured therapeutic reasoning visible throughout Aetius' text, where anatomical accessibility, prognosis, and the expected progression of disease together determine whether intervention, conservative treatment, or palliative care is appropriate.

Non-surgical treatment of cancer: pharmacology and humoral therapy

Aetius' pharmacological recipes reveal a complex therapeutic strategy for managing malignant disease. In addition to surgical intervention in selected cases, physicians relied on a wide range of medicinal preparations intended to alleviate symptoms, limit ulceration, and restore humoral balance within the body. These treatments combine botanical substances, mineral compounds, and animal-derived materials, reflecting the broader pharmacological tradition inherited from earlier Greek medicine.

Care of carcinomas not subject to surgical treatment

First of all, before any treatment of a malignant ulcer, it has been stated many times that one must take care of the condition of the whole body and only then employ local remedies. Accordingly, the bowels should be kept relaxed through diet, through the use of aloe, and the bitter preparation made from it. The patient should also be given to drink continually certain substances that are generally considered poisons but serve here as medicines, such as theriac, mithridate, and the antidote prepared from blood.

Among the simpler remedies, one should especially administer the warm blood of a freshly slaughtered goose or duck, or the finely ground bituminous trefoil in the amount of one or two spoonfuls with three cotyles of water. Alternatively, one may give one ounce of the seed of wild rue, or one drachma of aged pennyroyal, and also a decoction of mallow.

The broth of large river crabs taken together with donkey's milk and drunk for five days is also beneficial, as is the consumption of the crabs themselves. When this course is repeated seven times, it renders even the most cancerous breast very mild, and afterwards, with simpler topical applications, it can be brought completely back to a natural state.

Ἐπιμέλεια καρκινωμάτων τῶν χειρουργία μὴ ὑποβαλλομένων

Πρῶτον μὲν πρὸ πάσης ἐπιμελείας παντὸς ἔλκου κακοήθους, προεῖρηται πλειστάκις, ὡς προνοεῖσθαι χρὴ τοῦ παντὸς σώματος καὶ οὕτως τοῖς τοπικοῖς βοηθήμασι χρῆσθαι· εὖλυτον μὲν οὖν προσήκει τὴν κοιλίαν κατασκευάζειν διὰ τε τροφῶν καὶ δι' ἀλόης καὶ τῆς δι' αὐτῆς σκευαζομένης πικρᾶς, διδόναι δὲ πίνειν συνεχῶς καὶ τὰ πλείστα δηλητήρια ὡς φάρμακα ἀρμόζοντα, οἷά ἐστιν ἡ θηριακὴ καὶ ἡ मिथριδάτειος καὶ ἡ δι' αἱμάτων ἀντίδοτος· τῶν δὲ ἀπλῶν μάλιστα αἷμα χηνὸς ἢ νήσσης νεοσφαγοῦς θερμὸν τῶν δὲ ἀπλῶν μάλιστα αἷμα χηνὸς ἢ νήσσης νεοσφαγοῦς θερμὸν διδόναι ἢ τριφύλλου τῆς ἀσφαλτώδους λειοτάτης ὅσον κοχλιάρια α ἢ β μεθ' ὕδατος κοτυλῶν γ'. ἢ πηγάνου ἀγρίου σπέρματος γοα ἤτοι οὐγ. α. ἢ γλήχωνος παλαιότερου δραχ. α. διδόναι χρὴ καὶ μαλάχης ἀφέψημα. Ὡφελήσει δὲ τὰ μεγάλα καὶ καρκίνων ποταμίων ζωμὸς σὺν γάλακτι ὀνείῳ ῥοφώμενος ἐπὶ ἡμέρας πέντε, καὶ πάλιν ἡ τῶν καρκίνων πόσις· ἐπτάκις γὰρ ἡ τοιαύτη περίοδος παραληφθεῖσα, πραότατον τὸν καρκινωδέστατον μαστὸν ἀποτελεῖ, καὶ δι' ἀπλουστέρων λοιπῶν ἐπιθεμάτων εἰς τὸ κατὰ φύσιν τελείως φθάνει. [10 s16.51]

This passage demonstrates that Aetius did not approach malignant disease solely through local intervention. Following the established therapeutic principles of Hippocratic and Galenic medicine, he first seeks to regulate the body as a whole and to evacuate or counteract the morbid humours believed to underlie cancerous formations. Particularly striking is the recommendation of internal antidotes such as theriac and mithridate, substances originally developed to counteract poisons and venomous bites but here redeployed against pathological internal corruption.¹⁰ Cancer is therefore treated not merely as a local mass but as the manifestation of a broader systemic disorder requiring humoral correction before topical treatment can begin.

Aetius distinguishes carefully between non-ulcerated and ulcerated malignant lesions. In the former case the therapeutic aim is cautious and conservative: one seeks to calm pain, reduce inflammatory exacerbation, soften hardness, and above all prevent the lesion from breaking open.

¹⁰ Antidotes (*antidota*) in Greco-Roman medicine were compound remedies administered internally in order to counteract poisons, venomous bites, or diseases believed to arise from corrupted humours. Among the most famous were mithridate (*mithridateion*) and theriac (*thēriakē*). Mithridate was traditionally attributed to King Mithridates VI of Pontus, who was said to have experimented with numerous substances in search of a universal antidote against poisons. The later and more elaborate preparation known as theriac was formulated in the first century CE by Andromachus, physician to the emperor Nero, who modified the earlier Mithridatic compound and added ingredients such as viper flesh. [25 s14.2-8] Both preparations became highly complex polypharmaceutical mixtures containing dozens of botanical, mineral, and animal ingredients and were widely used throughout antiquity and the Middle Ages as general antidotes against poisons, venomous animals, and various chronic diseases.

Treatment of non-ulcerated cancerous tumours

In particular, for non-ulcerated tumours, one should apply a poultice made by grinding bread with a small amount of comfrey, applying it lightly. During acute attacks, grind together roses, melilot, and poppy seed with sweet wine; when the mixture has softened, boil it slightly and apply it after grinding it together with egg yolks. Alternatively, apply boiled marsh-mallow leaves ground either alone or together with bread. The following remedy is also effective during exacerbations: take equal amounts of plantain seed, poppy heads together with their seeds, and psyllium. Grind the other ingredients but soak the psyllium in Cretan sweet wine and grind it separately, adding a sufficient amount of the fleshy pulp of rich dates. Then mix this with the dry ingredients, add the psyllium, combine them thoroughly, and add a small amount of goose fat. Warm the entire mixture gently and apply it warm. Afterwards apply a dressing consisting of dates together with a suitable amount of bread soaked in liquid, applied cold. The finely ground seed of hedge-mustard is also useful for cancerous conditions when applied warm with a little hyssop and hydromel. Likewise, the tender leaves of the ash tree, boiled in water and then ground and applied warm by themselves, soothe the pains of even the most malignant tumours; and if any hardness persists in them, they disperse it remarkably. I also continually use fomentations with the decoction of these leaves and obtain good results. The tree in question is a cultivated one that bears no fruit. After this, the poultice made from plantain should again be applied, or the plaster of Hicesius, or black panacea carefully prepared, or another similar remedy. These treatments apply provided that the condition has not yet ulcerated.

Ἐπιμέλεια τῶν ἀνελκῶτων καρκινωδῶν ὄγκων

Ἰδίως δὲ ἐπὶ τῶν ἀνελκῶτων ὄγκων ἄρτον μετ' ὀλίγου συμφύτου λειώσας, κουφότερον ἐπιτίθει· ἐν δὲ τοῖς παροξυσμοῖς ρόδα, μελίλωτα, μήκωνος σπέρμα λεάνας σὺν γλυκεῖ, καὶ ὅταν βραχὴ ἐψήσας καὶ σὺν λεκίθοις ὧν λεάνας ἐπιτίθει· ἢ ἀλθαίας φύλλα λεάνας ἐφθὰ ἐπιτίθει καθ' αὐτὰ ἢ σὺν ἄρτῳ. Δραστικὸν δὲ ἐστὶν ἐν τοῖς παροξυσμοῖς παραλαμβάνόμενον καὶ τοῦτο· ἄρνογλώσσου σπέρμα καὶ κωδύα μήκωνος σὺν τῷ σπέρματι καὶ ψυλλίοις ἴσα κόψας, σήσας τὰ ἄλλα, τὸ δὲ ψύλλιον γλυκεῖ κρητικῷ βρέξας καὶ λεάνας, καὶ φοινίκων λιπαρῶν σαρκῶν τὸ ἄρκοῦν· κάπειτα μίξας τοῖς ξηροῖς ἐπίβαλλε καὶ τὸ ψύλλιον, καὶ ἐνώσας καὶ στέαρ χήνειον ἐπιβαλὼν ὀλίγον καὶ χλιάνας ἅμα τὰ πάντα, ἐπιτίθει θερμῶς, καὶ ἀναλαβὼν τοῖς φοίνιξι καὶ ἄρτον διάβροχον σύμμετρον ἐπιτίθει ψυχρόν· χρήσιμον ἐπὶ τῶν καρκινωδῶν καὶ τοῦ ἐρυσίμου τὸ σπέρμα λείον μετὰ ὑσώπου ὀλίγου καὶ ὑδρομέλιτος θερμὸν ἐπιτιθέμενον· μελίας δὲ τοῦ δένδρου τὰ ἀπαλὰ φύλλα ἐψούμενα ὕδατι, εἴτα λεῖα καθ' αὐτὰ θερμὰ ἐπιπλαττόμενα, παραμυθεῖται τῶν κακοηθεστάτων τὰς ὀδύνας, καὶ εἴ τι ἐπιμένει αὐτοῖς, διαφορεῖ θαυμαστῶς· καὶ τῷ ἀφεψηματι δὲ τῶν φύλλων πυρία χρῶμαι συνεχῶς καὶ ἐπιτυγχάνω, ἔστι δὲ τὸ δένδρον ἐργάσιμον ἄκαρπον· μετὰ δὲ ταῦτα πάλιν τὸ δι' ἄρνογλώσσου κατάπλασμα δοκιμαζέσθω ἢ ἡ Ἰκεσίου ἔμπλαστρος, ἢ πανάκεια μέλαινα εὐαφεστάτως σκευαζομένη, ἢ ἐτέρα τῶν παραπλησίων ἐπιτιθέσθω· καὶ ταῦτα μὲν εἰ μὴ ἔλκος εἴη. [10 s16.52]

The therapeutic logic behind these preparations is consistent. Their ingredients largely belong to a pharmacological profile characterized by softening, moistening, cooling, and pain-relieving effects. Aetius is not attempting to destroy the tumour itself. Rather, he aims to quiet inflammatory activity and maintain the lesion in a relatively stable condition. This approach accords closely with the broader ancient medical preference for cautious treatment of hidden or non-ulcerated cancers, which were often regarded as dangerous to irritate aggressively.

One particularly elaborate example is the compound plaster attributed to Poletos, prepared from marshmallow, colophony, wax, oil, and copper derivatives. The detailed instructions preserved by Aetius illustrate the sophisticated pharmaceutical techniques involved in preparing such *emplastra*. The preparation was applied to ulcers, glandular swellings, and non-ulcerated cancers, where its purpose was to soothe the lesion, promote drainage, and prevent further ulceration. [13 s15.120-58] Significantly, the text explicitly states that the remedy “soothes non-ulcerated cancers and prevents them from further corrosive growth,” [13 s15.15] indicating that the therapeutic goal was primarily the control of disease progression rather than radical cure. [13]

Another compound preparation preserved by Aetius further illustrates the therapeutic logic applied to non-ulcerated cancers. [10 s16.54] The remedy combines wax, resins, animal fats, honey, and mineral substances such as *diphryges*.¹¹ Aetius explicitly remarks that when frankincense is added the compound becomes more dispersive and digestive, making it particularly suitable for non-ulcerated tumours, whereas the milder version without frankincense is more appropriate for ulcerated lesions. This observation is revealing, since it demonstrates that Aetius calibrated his pharmacological compounds according to the stage of the disease. Non-ulcerated tumours could tolerate somewhat more active, dispersive preparations intended to soften hardness and restrain further development, while once ulceration occurred the therapeutic strategy shifted toward gentler, soothing dressings.

This distinction marks an important transition in Aetius’ therapeutic reasoning. As long as the tumour remained closed, treatment aimed to control inflammation and prevent rupture. Once ulceration developed, however, the physician’s goal changed: rather than attempting to disperse the lesion, therapy focused on calming the ulcerated tissue and limiting further damage:

¹¹ *Diphryges* was a mineral medicinal substance known in ancient pharmacology, produced as a by-product of copper smelting. According to Galen, it originated particularly from the copper mines of Soloi in Cyprus and was initially discarded as waste after the extraction of cadmia. Pharmacologically it was considered a compound of moderately astringent and mildly caustic qualities, which made it especially useful in the treatment of malignant or putrid ulcers. Galen reports employing it both alone and mixed with honey for ulcerative lesions of the mouth and throat, and also for wounds of the genital and anal regions, where its drying and cicatrizing properties promoted the formation of firm scar tissue. [19 s12.214-7]

Treatment of ulcerated cancer

For a malignant ulcerated carcinoma, the mildest dressing is considered the most appropriate remedy. Archigenes recommends the following preparation: Take litharge, fresh pork fat, and white wax in equal amounts; add sixteen ounces of good oil and twelve yolks of roasted eggs.¹² Grind the litharge with a suitable amount of water; then pour in some of the oil and add the egg yolks, mixing them thoroughly. Melt the fat after cutting it into pieces in a vessel, gently heating it together with the wax, and strain it. When the mixture has cooled, gradually add the remaining oil while stirring, and combine it with the previously ground ingredients. Use the preparation after thinning it with rose oil, applying it with soft wool in place of lint dressings. If the ulcer is painless, one may also add orris root, myrrh, and aristolochia, one or three drachmas of each. This preparation is also effective when applied to non-ulcerated carcinomas.

Ἑλκωμένου καρκίνου ἐπιμέλεια

Ἑλκωμένῳ δὲ κακοήθει πρῶτατον ἐπίθεμα ὁμοιον κειμήλιον ἐστί· παράλαβε τοῦτο φησὶν Ἀρχιγένης, ὃ καὶ ἔχει οὕτως· λιθαργύρου, στέατος ὑείου προσφάτου, κηροῦ λευκοῦ ἀνά λια. ἐλαίου καλοῦ γοιστ ἥτοι οὐγ. ις'. ὥων ὀπτῶν λεκίθους ιβ'. τὴν λιθάργυρον τρίβε μεθ' ὕδατος συμμέτρου, εἴτα παραχέων τι τοῦ ἐλαίου, ἐπίβαλλε καὶ τὰς λεκίθους καὶ συλλέαινε. τὸ δὲ στέαρ ἐξυμενίσας καὶ κόψας ἐν θυίᾳ, τῆκε ἀκνίσσας σὺν τῷ κηρῷ καὶ διήθει· ψυχρανθὲν δὲ, κινῶν ἐπίβαλλε τὸ λοιπὸν τοῦ ἐλαίου κατὰ βραχὺν, καὶ ἀναμίξας ἐν θυίᾳ τοῖς λειωθεῖσιν ἀναλάμβανε. χρῶ δὲ αὐτῷ ἀνιείς ῥοδίνῳ, καὶ ἐρίῳ ἀπαλῶ ἀναλαβὼν ἀντὶ μοτῶν ἐπιτίθει· ἀνωδύνου δὲ ὄντος τοῦ ἔλκου, προσπλεκέσθω καὶ ἱρίδος, σμύρνης, ἀριστολοχίας ἀνά δραχ. α ἢ καὶ γ', ὃ καὶ τοῖς ἀνεγκώτοις ἐπιτιθέμενον ἰσχύει χρήσιμον εἶναι. [10 s16.53]

The composition of this dressing reflects the therapeutic principles governing the treatment of ulcerated cancers. Aetius explicitly recommends the mildest possible applications for such lesions, emphasizing substances that protect and soothe the exposed tissue rather than aggressively attacking the tumour itself. The addition of small amounts of iris, myrrh, and particularly *aristolochia* is noteworthy. In ancient pharmacology, *aristolochia* was known for its cleansing and mildly corrosive properties,

¹² Litharge (*lithargyros*), a lead oxide obtained as a by-product of silver–lead smelting, was widely used in ancient pharmacology, particularly in the preparation of medicinal plasters (*emplastra*). As Galen explains, litharge itself possessed only a minimal intrinsic pharmacological activity, functioning primarily as a material base that allowed oils, water, vinegar, or wine to combine into stable adhesive preparations. These plasters exerted a mild cooling and drying effect and were thought to restrain pathological “fluxes” of humours into diseased tissue, a mechanism considered crucial in the management of ulcers and other chronic lesions. Stronger formulations were applied to fistulas and difficult-to-heal wounds, conditions that ancient physicians often associated with malignant ulcerations. Galen also emphasizes that such preparations dried tissues “without biting” (*xērantikon adēktōs*), distinguishing them from more aggressive caustic treatments frequently employed in the management of cancerous growths. [26 s13.397–408]

frequently used to draw out pathological matter from wounds and ulcers.¹³ In this context, however, it appears in a carefully moderated form, suggesting that the aim was not to destroy malignant tissue but to assist the controlled cleansing of the ulcer while avoiding further irritation.

Book 1 also records the use of more aggressive botanical substances intended to cleanse or cauterize malignant tissue, among them *drakontion* (*Dracunculus vulgaris*), considered as more potent than arum, possessing heating, bitter, and slightly astringent properties capable of thinning thick and viscous humours. [7 p13, 9 s1.94.7] According to Dioscorides, the root was believed to cleanse malignant and gangrenous ulcers when ground with white bryony and honey, reflecting the broader ancient use of caustic or cleansing botanical substances in the treatment of destructive lesions. [23 s2.166] The leaves were applied to ulcers and fresh wounds, provided they were not excessively dried, since overly dry leaves were considered too sharp for damaged tissue. The fruit, regarded as even more powerful than the root, was believed to “dissolve cancers and polyps,” and the juice extracted from it was used to cleanse impurities from the eyes. [7 p12, 9 s1.94]

Furthermore, the seed of *erysimon* (often identified with hedge mustard, *Sisymbrium polyceratium*), whose taste was considered very similar to that of cress, was used in poultices. It was considered beneficial for expectoration of thick and viscous humours in the chest and lungs. Dioscorides considered them beneficial for hidden cancers. [7 s1.146]

Aetius [9 s16.55] also preserves compound preparations based on strongly astringent substances such as sumac, oak galls, and cypress cones. These ingredients, rich in tannins, were intended to dry ulcerating lesions and promote the natural wound-healing process.¹⁴

Animal-derived substances also appear prominently in Aetius’ therapeutic repertoire. These include goose or duck blood, donkey’s milk, and preparations made from river crabs, administered either internally or externally depending on the condition. The river crab’s ashes or decoctions were administered in various treatments, especially in cancerous conditions.¹⁵

13 Ancient pharmacological texts distinguish several varieties of *aristolochia*, whose root was regarded as a powerful medicinal substance characterized by bitter and pungent properties. The “round” variety was considered the most potent and therapeutically active, particularly valued for thinning thick humours, clearing obstructions, and cleansing wounds. The “long” variety was regarded as somewhat less penetrating but strongly warming and was therefore preferred when a milder cleansing effect was required, for example in wound healing or uterine fumigations. A more fragrant type, sometimes compared to clematis, was valued primarily for perfumery rather than medical treatment. [19 s11.835]

14 In book 2.209, Aetius gives a list of the substances possessing drying properties, including various plants (e.g., agnus castus, aristolochia, bryony, pomegranate blossom), animal products (viper flesh, crab ash, castoreum), and mineral materials such as salt, nitre, gypsum, and metallic substances. [9]

15 The medicinal use of burned crustaceans may also have had a practical pharmacological basis, as their mineral-rich ashes possess drying and astringent properties suitable for treating ulcerative lesions. River crabs were also used for the treatment of gout, [14 s12.67] as well as in the treatment of those bitten by rabid animals. [9 s2.175, 7 s6.24, 11 s13.23]

Mineral substances also played a significant role in these preparations. One particularly striking passage recommends a substance that effectively functions as a chemical cauterizing agent. The author advises the use of a deposit collected from the hot-water vessels of bronze-workers, likely a sediment or residue produced in the working of copper (*hypostathmē*).¹⁶ This material is heated among glowing coals until it becomes fully incandescent, then finely ground and incorporated into rose cerate before being applied locally. The therapeutic logic behind this preparation reflects the broader ancient pharmacological use of copper-based substances as caustic and desiccating agents. In the context of uterine carcinomas—explicitly described in the text as incurable following Hippocratic doctrine—the goal of such treatment was not curative but palliative: to cauterize, dry, and control ulcerating malignant tissue while reducing discharge and foul odour.

In addition to local pharmacological treatments, Greco-Roman medicine also recommended systemic therapies aimed at removing harmful humours from the body, believed to cause hard and destructive tumours. For this reason physicians frequently prescribed purgative treatments intended to evacuate these harmful humoral residues. Vomiting and other forms of purgation (*katharsis*) were considered beneficial in many diseases, including malignant tumours, because they expelled substances thought to contribute to the formation and persistence of pathological growths. [9 s2.255] Among the substances used for purgation were saline mineral preparations such as *empetron* (sea-heath, *Franklinia pulverulenta*), *epipetron* (a rock plant), and the seeds of *knēkos* (safflower, *Carthamus tinctorius*) which ancient physicians believed could evacuate phlegm and bile from the body. [7 s1.206, 9 s1.143]

Dietary regulation also formed part of this therapeutic logic. Aetius warns, for example, that certain foods — especially beef — produce blood that is excessively thick and therefore predispose individuals of melancholic constitution to diseases associated with black bile. Among the conditions linked to such humoral imbalance he lists cancer, elephantiasis, scabies, quartan fever, and melancholia itself. [9 s2.121]

¹⁶ After the pouring of cold water - just as in the case of “flower of copper” (*chalkou de anthos*) - and after the copper has been removed, this substance is found remaining in the furnace, lying on the bottom of the crucible. It possesses both the astringent quality and the taste of copper. [23 s5.103.2] The flower of copper, yet another important mineral, was described as a reddish metallurgical deposit formed during the cooling of molten copper when water is poured over the metal to remove impurities. The sudden contraction of the heated material produces a granular residue that rises to the surface of the vessels used in smelting. In ancient medicine this substance was valued for its strongly astringent and caustic properties and was used in the treatment of abnormal tissue growths, ulcerations, and inflammatory conditions, as well as in certain ophthalmic and otological preparations. [23 s5.77]

Conclusion

The evidence preserved in Aetius of Amida's *Tetrabiblon* shows that late antique physicians approached malignant disease through a therapeutically differentiated framework rather than through abstract theory alone. Breast and uterine carcinomas were not treated in the same way: the former could in selected cases be excised and cauterized, whereas the latter were regarded as incurable and managed conservatively. This distinction reveals the importance of prognosis, anatomical accessibility, and haemorrhagic risk in shaping therapeutic choice.

At the same time, Aetius' pharmacological material demonstrates that the management of cancer extended well beyond isolated recipes. Botanical, mineral, and animal-derived substances were deployed within a coherent strategy aimed at soothing pain, drying ulcerations, controlling discharge, and regulating the humoral condition of the whole body. Even where cure was impossible, treatment remained active and purposeful.

Taken together, these therapeutic approaches illustrate the integrated medical framework of late antiquity, in which surgery, topical pharmacology, diet, and humoral regulation functioned as complementary strategies in the management of malignant disease. Although ancient physicians lacked the anatomical and pathological understanding of cancer developed in modern medicine, their treatments reveal a coherent therapeutic system that combined surgery, pharmacology, and regimen in a sustained effort to manage malignant disease.

More broadly, this evidence challenges the long-standing historiographical assumption that late antique medicine was largely derivative or intellectually stagnant. Instead, Aetius' compilation demonstrates that late antique physicians preserved and systematized a practical body of surgical and pharmacological knowledge, adapting inherited traditions into coherent therapeutic strategies suited to clinical practice.

Rezime

Ovaj rad razmatra terapijske pristupe malignim oboljenjima u medicinskom kompendijumu Aetija iz Amide, polazeći od *Tetrabiblona* kao izvora za praktičnu medicinu kasne antike, a ne samo kao kompilacije ranijih teorijskih znanja. U središtu analize nalaze se odlomci posvećeni karcinomima dojke i materice, kroz koje se ispituju dijagnostički opisi, kriterijumi za hirurški zahvat, postoperativna nega i farmakološko lečenje. Pokazuje se da Aetije čuva koherentan terapijski okvir u kojem prognoza, anatomska pristupačnost i humoralna regulacija određuju izbor između ekscizije, kauterizacije i palijativne terapije. Dok su tumori dojke u pojedinim slučajevima mogli biti podvrgnuti operaciji, karcinomi materice smatrani su neizlečivim i lečeni su konzervativno, umirujućim, adstringentnim i isušujućim sredstvima. Posebna pažnja posvećena je Aetijevoj farmakologiji, koja objedinjuje biljne, mineralne i životinjske supstance u terapiji usmerenoj na ublažavanje bola, kontrolu ulceracije, smanjenje sekrecije i regulaciju celokupnog stanja organizma. Rad pokazuje da su lekari kasne antike raspolagali razvijenijim praktičnim razumevanjem progresije tumora i granica lečenja nego što se to obično pretpostavlja, te da Aetijev tekst

predstavlja dragoceno svedočanstvo o integraciji hirurgije, farmakologije i humoralne patologije u lečenju raka.

Ključne reči: farmakologija; ginekologija; hirurgija; maligni neoplazmi

Non MeSH: istorija raka; kasnoantička medicina; vizantijska medicina; Aetije iz Amide; antička hirurgija; humoralna patologija

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Submitted: 02/02/2026

Reviewed: 17/03/2026

Accepted: 30/03/2026